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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

Editorial Staff			
Geo. S. Demuth and E. R. Root	A. I. Root	Iona Fowls	H. G. Rowe
• Editors	Editor Home Dept.	Assistant Editor	M'n'g Editor

Honey Wanted Honey

We are in the market for both comb and extracted. Send sample of extracted, state how put up, with lowest price, delivered Cincinnati. Comb honey, state grade and how packed, with lowest price, delivered Cincinnati. We are always in the market for white honey, if price is right.

C. H. W. Weber & Co.

2163-65-67 Central Av.,

Cincinnati, Ohio

HONEY CANS

Several carloads just received at our Ogden and Idaho Falls warehouses. We also manufacture shipping cases and beehives. Special prices on request. "Everything in Bee Supplies." Prompt shipments.

SUPERIOR HONEY CO., OGDEN, UTAH

(Manufacturers of Weed Process Foundation.)

WANTED---COMB HONEY

We are in the market for 10 to 20 carloads. Must be $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{7}{8}$ in beeway sections. Describe the quality, grade, and quantity, and when you will have it ready for shipment. Will take less than carload lots, if fancy and well packed in carrier. Also Extracted Honey—send sample.

HOFFMAN & HAUCK, INC., WOODHAVEN, N. Y.

Have You Sold Your Honey?

We are buying COMB and EXTRACTED honey. Send us a sample and tell us what you have to offer. Name your most interesting price delivered to Cincinnati. Remittance goes forward the day shipment is received.

Old Comb—Don't forget we render wax from your old combs and cappings. Write us for shipping tags.

* * * * *

We Offer You Friction-Top Cans

2½-lb. cans.....	\$ 4.25 per 100	\$.50 per 10
5 -lb. cans.....	8.00 per 100	1.00 per 10
10 -lb. cans.....	12.00 per 100	1.40 per 10

1-lb. Round Screw Top Jars, 2 doz. in shipping case,

10-case lots.....\$1.60 per case.

Prices cash with order, f. o. b. Cincinnati.

* * * * *

THE FRED W. MUTH CO.

Pearl and Walnut Streets.

Cincinnati, Ohio.

*Count on us for
Prompt Service*

*Mail, Express
or Freight*

U R IN NEED

of supplies to finish up your season in good shape. Let us fill that order now.

Have you our discount sheet? New York State Beekeepers, write us for same.

F. A. SALISBURY

1631 West Genesee St., Syracuse, N. Y.

*We have the goods.
Try us for quality.*

*Write us for
quotations.*

HONEY MARKETS

U. S. Government Market Reports.

SHIPPING POINT INFORMATION (FIRST HALF OF AUGUST.)

CALIFORNIA POINTS.—Supplies of old crop light, of new crop moderate. Prospects are good in northern California, but in the southern part of the State the early dry spell was not compensated for by the later rains, and perhaps one-third of a crop may be looked for. Light wire inquiry. Demand and movement lighter than for previous two weeks. Market firm on white orange and white sage, mainly on account of short crop. Quotations are all on new stock. Carloads f. o. b. usual terms at loading points: white orange 9½-10c, mostly 10c; white sage 10c, light amber sage 7-7½c, white mesquite 6c, light amber alfalfa 5c. Old crop white orange low as 8c. Hawaiian, old crop practically cleaned up, new crop not ready, no sales reported. Beeswax, supplies liberal. Demand limited. Crude wax offered by dealers, 23-25c per lb.

INTERMOUNTAIN REGION.—Prospects are for an average crop on the whole, with decided variations in certain sections. In eastern Oregon and southwestern Idaho the flow did not commence until July 20, and the outlook is for not over half a crop. Demand has slightly improved and shipments are increasing. Carlots of white sweet clover are offered at 7-8c per lb., while around 12c per lb. is being secured for small lots of white alfalfa and clover.

CENTRAL STATES.—Ohio seems to enjoy about the best crop of honey in the country this year—good in quality as well as quantity. Wisconsin may have a light fall flow as a result of recent rains, but the present outlook for the State is for a 25-30 per cent crop. Colonies are breeding up to good winter strength of young bees. The drouth has also affected the crop of other northern States materially. Demand good for small lots, but slow for large lots. Extracted white clover in large lots can be bought for 7-8c per lb. f. o. b. with smaller lots ranging up to 15c per lb. Comb honey in small lots is quoted \$4.00-6.00 per case. Best yellow beeswax is bringing 26c per lb. in cash or 29c per lb. in trade.

NORTHEASTERN SECTION.—Bees are in generally good condition, but the honey crop is only fair. In some important honey-producing sections of New York State the outlook is even poor, and an estimate for the State of 50 per cent is made by several observers. The drouth has also very seriously reduced the crop in Vermont.

SOUTHERN UNITED STATES.—Where recent rains have been abundant, a good fall flow is expected, but in many sections the drouth has not been much relieved by rains and little encouragement is given for the fall. Colonies are in normal condition in most districts. The crop is moving slowly: small lots of white extracted honey sell around 8-10c per lb. White heavy comb is quoted at \$5.00 per 24-section case, with lighter sections at 50c less. Dark comb honey is listed around \$4.00-4.50 per case.

PORTO RICO.—Offerings are said to be less plentiful, and the crop is not a large one.

MIDDLE-ATLANTIC SECTION.—Present outlook is encouraging for a large yield in Pennsylvania from buckwheat and clover. The main flow is now on. Very little stock held over from last year. Colonies in Pennsylvania are said to be in good condition.

TELEGRAPHIC REPORTS FROM IMPORTANT MARKETS.

BOSTON.—No carlot arrivals reported during past two weeks. Somewhat better local inquiry reported, principally for Porto Rico honey, supplies of which are mostly cleaned up. Bottled honey is slightly lower, and brokers' prices on l. c. l. lots of California honey are reported lower. Old crop comb honey is unchanged with little demand. Comb: Sales to retailers, old stock, New York, 24-section cases white clover No. 1 heavy \$8.00-8.50, light low as \$6.50. Vermont, 20-section cartons white clover No. 1, \$7.00-7.75. Extracted: Sales to confectioners and bottlers, Porto Rico, amber per gal., 80-85c.

California, white sage, per lb., few sales 16-18c. Brokers' l. c. l. nominal quotations delivered Boston—California, white sage 11c, amber and light amber alfalfa 6½-7½c per lb.

CINCINNATI.—One car Florida arrived during past two weeks. On account of the refusal of the principal honey and beeswax receivers to furnish the information necessary to report market conditions and prices in Cincinnati accurately and completely, no report can be published for this important honey and beeswax center.

CHICAGO.—No carlot arrivals, and l. c. l. arrivals have been light. Dealers appear to have ample supply in storage. Reports of short crop in northern States due to drouth have strengthened market somewhat. Very little f. o. b. buying reported in any section. Extracted: Local sales to bottlers and candy manufacturers, Colorado and Montana, white alfalfa 9-10c, light amber alfalfa 7-8c. Ohio, Wisconsin, and Minnesota, white clover 10-12c, mostly 10-11c. Comb: Sales to retailers, 24-section cases, Minnesota, Wisconsin, and Ohio, white clover and basswood, No. 1, \$6.50-6.75; No. 2, wide range in quality, some sections very light, discolored and leaky, \$3.00-5.50, mostly around \$5.00. Beeswax: Receipts moderate of domestic wax, very light of foreign. European countries, particularly Germany, reported buying actively in Brazil and Central America with result market strengthening here on foreign wax, domestic market just about steady. Sales to harnessmakers, wholesale druggists or insulator manufacturers, Oklahoma, Missouri, and Colorado, light 28-32c, dark 25-28c. Foreign, few sales light 24-26c per lb.

KANSAS CITY.—No carlot arrivals since last report. Supplies light. Demand and movement light, market strong. Extracted: California, dark amber sage 8½c per lb. Comb: Missouri, 24-section cases No. 1 various flavors \$6.50-7.00.

MINNEAPOLIS.—No carlot arrivals during past two weeks. Extracted: Supplies light. Practically no demand, market dull. No sales reported.

PHILADELPHIA.—Supplies are generally light and the demand is somewhat improved but very few sales are reported. Extracted: Sales to bakers, Florida, light amber various flavors bulk per gal. 60c. Beeswax: Supplies moderate, but the demand has improved and the market is firm. Sales to manufacturers, per lb. South American, crude light 25-26c, slightly darker 22-23c, African, dark 16-17c.

ST. LOUIS.—Comb: No receipts reported. Supplies light. No sales reported. Extracted: Very light receipts of new southern honey reported. Considerable stock beginning to be offered from the South, but market has very little demand and is very dull. Practically no sales. Market quoted nominally at 7-10c per lb. on southern extracted in 5-gal. cans various mixed flavors according to quality. Beeswax: Very light receipts. Demand and movement limited, market steady with unchanged prices. Sales to jobbers, southern, ungraded average country run 25c per lb.

NEW YORK.—Domestic l. c. l. receipts limited, South American and West Indian receipts light. Supplies limited. Demand limited, movement light, market dull. Extracted: Spot sales to jobbers, wholesalers, confectioners, bakers, and bottlers, domestic, per lb. California, white orange blossom 10-11½c, few high as 12c, white sage 9-10c, few high as 11c, white sweet clover 9-9½c, few 10c, light amber alfalfa 7-7½c. New York, sweet clover, few sales 8½-9c. South American and West Indian, refined per gal. best 60-65c, poorer low as 55c. Beeswax: Foreign receipts light. Supplies limited. Demand and movement limited, market dull. Spot sales to wholesalers, manufacturers, and drug trade. South American and West Indian: crude light, best 25-26c, poorer 22-24c, dark mostly 15c, few 16c. African, dark 15-16c, few high as 17c.

H. C. TAYLOR,

Chief of Bureau of Markets.

Special Foreign Quotation.

LIVERPOOL.—Little movement in honey. The price of good extracted honey, in American currency, is about eight cents a pound. The market for beeswax of the best quality is about 25 cents. Liverpool, England, Aug. 3. Taylor & Co.

Opinions from Producers.

Early in August we sent to actual honey producers, scattered over the country, the following questions:

1. How does the total honey crop compare with normal to date in your locality? Give answer in per cent.
2. At what price is the new crop moving in large lots? Comb honey? Extracted?
3. What are prices in small lots to retailers? Comb honey? Extracted?

State.	Reported by	Crop.	Whol.Price	Ret.Price	Comb.	Ext.	Comb.	Ext.
Ala.	W. D. Achord...	70					\$1.15	\$1.12
Ala.	J. M. Cutts...	40					.20	.08
Ala.	J. C. Dickman...	40					.25	.15
Ariz.	K. Ray Evans...	34			\$1.05			.06
Ark.	J. V. Ormond...	30					.25	
Ark.	J. Johnson...	100					.27	
Cal.	L. L. Andrews...					.09		.12
Cal.	M. A. Saylor...	75	\$6.00			.06	.27	.10
Cal.	M. H. Mendleson...	10				.11	.27	
Cal.	B. W. Hopper...	10	5.50			.10	6.00	.15
Conn.	Allen Latham...	90					5.50	.20
Fla.	W. Lamkin...	100				.09		.13
Fla.	H. Hewitt...	50				.12		.15
Ga.	J. J. Wilder...	70	6.00					
Ida.	J. E. Miller...	100				.10	.20	.13
Ill.	C. F. Bender...	25					7.00	
Ill.	A. L. Kildow...	30						
Ind.	E. S. Miller...	75					6.00	.20
Ind.	T. C. Johnson...	75					6.00	.25
Ia.	F. Coverdale...	0						
Ia.	E. G. Brown...	50				.11	6.00	.15
Ia.	W. S. Pangburn...	0				.16		
Kan.	C. D. Mize...	60					7.00	
Kan.	J. J. Nininger...	75					6.50	.15
Ky.	P. C. Ward...	30					.25	
La.	E. C. Davis...	90	6.00				.35	.18
Me.	O. B. Griffin...	65	.30	.20			.30	.25
Md.	S. J. Crocker, Jr...	25					.25	.17
Mass.	O. M. Smith...	50					.20	
Mass.	W. H. Wolff...	50					.37	.32
Mich.	L. S. Griggs...	75					.30	.20
Mich.	I. D. Bartlett...	50					.30	.15
Mich.	F. Markham...	100	.20	.15			.25	.20
Mich.	E. D. Townsend...	65					.13	.20
Miss.	R. B. Willson...	75	5.00	.10			.27	.17
Mo.	J. W. Romberger...	20						
Mo.	J. H. Fisbeck...	60						
Neb.	F. J. Harris...	25	.21	.15			.37	.30
Nev.	L. D. A. Prince...	0	6.00	.10			6.00	.20
Nev.	T. V. Damon...	30					6.00	.14
Nev.	E. G. Norton...	20						.12
N. Y.	G. H. Rea...	40	5.75	.11			7.00	.20
N. Y.	Adams & Myers...	50					.27	.20
N. Y.	G. Howe...	40	4.50				5.00	.22
N. Y.	F. W. Lesser...	85						
N. Y.	N. L. Stevens...	100				.08	4.80	.15
N. C.	C. L. Sams...	40					.23	.19
N. C.	C. S. Bumgarner...	75					.25	.15
Ohio.	R. D. Hiatt...	133					.25	.20
Ohio.	J. F. Moore...	100	5.00	.12			5.00	.14
Ohio.	W. A. Matheny...	90	.30	.30				
Okla.	F. Leininger...		.20	.13			.25	.15
Okla.	C. F. Stiles...	50					.25	.20
Okla.	J. Heneisen...	20						
Ore.	E. J. Ladd...	45	7.75	.14			8.50	.17
Ore.	H. A. Scullen...	50	.37	.21			.30	.17
Pa.	C. N. Greene...	80	.25	.20				
Pa.	D. C. Gilham...	60					.42	.40
Pa.	H. Beaver...	80					.22	.15
R. I.	A. C. Miller...	0					.30	.25
S. C.	R. S. Conradi...	50					.25	
Tenn.	G. M. Bentley...	100	.35	.25			.47	.35
Tenn.	J. M. Buchanan...	100				.28	.30	.25
Tex.	H. B. Parks...	95				.08	.15	.10
Tex.	J. N. Mayes...	60	.15	.11			.16	.12
Tex.	T. A. Bowden...	75						
Utah.	N. E. Miller...	80						
Utah.	M. A. Gill...	120	4.75					.10
Vt.	J. E. Crane...	33	8.00				8.00	.25
Va.	L. N. Gravelly...	6					.30	.15
Wash.	G. W. B. Saxton...	65						.15
Wash.	G. W. York...	75	5.50	.11				.23
W. Va.	T. K. Massie...	5					.25	
Wis.	E. Hassinger, Jr...	50				.12	.32	.19
Wis.	N. E. France...	25	.22	.15			.25	.15
Wis.	H. F. Wilson...	25				.15	.30	.20
Wyo.	A. D. Brown...	95	4.85	.11			6.00	.15

Queens, 90c and up

We are uniting our nuclei this month and are offering our **QUALITY QUEENS** at a price that will take them in a hurry. We guarantee these queens to be as good as you can buy elsewhere for more money than we are asking. The reason we are making such a sacrifice is because we want to get our bees in shape for winter. We will fill orders by return mail as long as our supply lasts, after that your order will be promptly returned.

Untested, 90c each, or \$10.00 a dozen.

Select Unt., \$1.10 each, or \$13.00 a doz.

Select Tested, \$2 each, or \$21 a doz.

HERMAN McCONNELL, Robinson, Illinois

Seven Queens for \$6.00

Pure mated, gentle, three-banded Italian Queens. Untested, \$1.00 each, seven for \$6.00. Select untested, \$1.25 each. Tested, \$1.75. *Requeen now.* Orders filled promptly.

D. W. HOWELL, SHELLMAN, GA.

MASON BEE SUPPLY COMPANY
MECHANIC FALLS, MAINE

From 1897 to 1921 the Northeastern Branch of The A. I. Root Company.

PROMPT AND EFFICIENT SERVICE
BECAUSE—Only Root's Goods are sold.

It is a business with us—not a side line.
Eight mails daily—Two lines of railway.
If you have not received 1921 catalog send name at once.

MAJOR'S BRIGHT THREE-BANDED
ITALIAN QUEENS ARE SELECTED.

Pure mating, safe arrival and satisfaction guaranteed. Orders filled by return mail. Queens' wings clipped according to your directions. Price: \$1.50 each, or \$15 per doz. Tested, \$3.00 each; virgins, 50c each.

H. N. MAJOR, SOUTH WALES, N. Y.

I. F. MILLER'S STRAIN ITALIAN
QUEEN BEES

Northern-bred, for business; from my best **SUPERIOR BREEDERS** (11 frames brood on April 7th). Gentle, roll honey in, hardy, winter well, not inclined to swarm, three-banded; 27 years' breeding experience. Satisfaction guaranteed in U. S. and Canada. 1 untested, \$1.25; 6 for \$7.00; 12 for \$13.00; 1 select, \$1.50; 6 for \$8.00; 12 for \$15.00; 1 tested, \$2.00; 6 for \$11.00; 12 for \$21.00.

I. F. MILLER, BROOKVILLE, PA., R. 2.



Shrubs and Trees

That provide Nectar for the Bees and Fruit for the household. No Cash with order. Get our Catalog TODAY.

PROGRESS NURSERIES
1317 Peters Ave. Troy, Ohio

PAILS---CANS---CASES

At greatly reduced prices. We are confident we can save western beekeepers on their requirements for all types of honey containers. Get our figures before buying.

AND---- at last, an inexpensive, but attractive advertising leaflet, bearing your apiary name, for distribution among your customers. Here is an effective means of building up a high-class retail trade. Let us send you sample, and quote.

The A. I. Root Co. of Iowa

Council Bluffs, Iowa



SOUTHERN HEADQUARTERS RELIABLE THREE-BANDED ITALIAN QUEENS

BY RETURN MAIL

For many years queens from our stock have been used and recommended by a number of the largest producers of honey in the U. S. and Canada. We cannot afford to disappoint them, and we will not disappoint you. Having several hundred colonies in outyards to select the very best breeding stock from, and large well-equipped queen-rearing yards, we offer you something good.

We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. The Back-lot Buzzers like them just the same as the larger producers.

PRICES NOW—Untested: 1, \$1.00; 6, \$5.50, 12, \$10.50;
25, \$20.00; 50, \$38.00. Tested: 1, \$1.75; 6, \$10.00

Prompt service, safe arrival,
and satisfaction, we guarantee.

W. D. ACHORD, FITZPATRICK, ALABAMA



Five-Pound and Ten-Pound Friction-Top Pails

We are naming prices below on these pails, and please note that **THESE PRICES ARE F. O. B. CARS LANSING**, and not from some distant factory point from which you will get slow delivery and high freight rates:

	25	50	100	200	500
5-lb. Friction-top pails.....	\$2.15	\$4.10	\$7.75	\$15.25	\$37.00
10-lb. Friction-top pails.....	2.90	5.75	11.25	22.00	54.00
5-lb. pails per wooden case of 12, per case \$1.35; ten cases					12.50
10-lb. pails per wooden case of 6, per case \$1.05; ten cases					9.50

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Comb Honey Shipping Cases

There is an increasing interest in the production of Comb Honey, and a material reduction in price on the shipping cases. You will get better prices for your honey if put up in these attractive packages. We quote below:

	10	50	100
24-lb. four-row for 1 $\frac{7}{8}$ -in. sections.....	\$6.00	\$29.00	\$57.50
24-lb. four-row for 1 $\frac{1}{2}$ -in. sections.....	5.85	28.35	56.00
24-lb. four-row for 4 x 5 sections.....	5.85	28.35	56.00

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Paste for Tin and Glass Packages

We have a very excellent paste for fastening labels on your glassware or pails. **THEY STICK.** We are quoting prices below. Postage extra.

"A" grade paste, per pint.....	\$.30
"A" grade paste, per quart.....	.55
"A" grade paste, per gallon.....	2.00

-:- -:- -:- -:- -:-

M. H. HUNT & SON

510 North Cedar Street, Lansing, Michigan

And Now Prepare for Winter



If you will be forehanded, begin now to get your bees in shape for winter. Young queens, plenty of young bees, ample stores, and efficient protection from winter winds are acknowledged requisites.

Stores can be added by sugar later if necessary; ample protection will be your fall efforts. But young bees and plenty of them can only be secured by prolific laying of a vigorous queen in combs of worker-cells.

If you have been forehanded, you will have used DADANT'S FOUNDATION in starting your combs, thus insuring maximum results in this line.

REMEMBER: Drone comb can profitably be replaced almost any time during a honey flow by DADANT'S FOUNDATION, thus bringing your colonies to maximum producing ability.

DADANT'S FOUNDATION—Every inch, every pound, every ton, equal to any sample we have ever sent out. Specify it to your dealer. If he hasn't it, write us.

DADANT & SONS, HAMILTON, ILL.

Catalog and Prices on Bee Supplies. Beeswax, Wax Working into Comb Foundation, and Comb Rendering for the asking.

GLEANINGS IN BEE CULTURE

SEPTEMBER, 1921

AT SOME of the field meets during the past summer some very handsome subscriptions



The Dr. Miller Memorial Fund.

have been received to swell the Miller memorial fund. Some organiza-

tions have sent in as high as \$100. Others have contributed all the way from \$25.00 to \$50.00. Let the good work go on. The money can be sent in to any member of the committee or to either the American Bee Journal or Gleanings.

OUR honey-label department is now printing more labels for the two-and-one-half-



Big Demand for Honey Labels.

pound tins and the five and ten pound pails than ever before in its history.

This is significant and encouraging. It indicates that beekeepers are inducing their customers to buy honey in these packages. This should result in a much larger consumption of honey than would be possible when sold in smaller packages. The five-pound pail habit is a good one to encourage.

THERE IS not much new to report beyond what is given in our last issue, page 481, except that the clo-



Market and Crop Conditions.

ver crop within 200 miles of Medina was excep-

tionally good; but it was from fair to poor elsewhere, especially so in Minnesota and Wisconsin, that have hitherto produced so much clover honey. The failure of the southern California crop, the general shortage in some other sections of the country, and the advance in the price of sugar give rise to the hope that the bottom has at last been reached, and that the turn for the better has come. The Government market reports for some sections are beginning to show stability. This is encouraging.

The economic conditions over the country are improving. This fact will have a tendency to make a slightly better demand for honey; but retail grocers, if they have not already done so, should be willing to sell at the new or reduced prices rather than hold for those that prevailed during the war. The failure of some of these to take their losses is one reason why their honey does not move.

The advice in our last issue, to sell locally as much honey as possible, keeping it away

from the large centers, is still good. Local selling will do much in advertising honey and getting it to families where it has never gone before. National advertising on the part of the large bottlers will not reach some of these.

BEEKEEPERS can very greatly stimulate the demand for honey in groceries where



Boost the Local Market by Live-Bee Displays.

their honey is displayed, by putting an observatory hive of bees in the

window for a few days. In connection with the bees there should be a fancy display card and nice exhibit of both comb and extracted honey in neat clean packages offered at the new reduced prices. The bees should be renewed every three days to keep them fresh. An observatory hive with bees half dead does vastly more harm than good.

If the beekeepers all over the country will use live bees to stimulate their grocery sales for the next month or six weeks, they will be surprised how they will clean up the grocery shelves of the old supply, and at the same time go a long way toward disposing of not only their crop of honey but that of their neighbors of whom they may buy.

A word of caution should be uttered against retailing honey at prices that are only slightly above jobbing or wholesale. Again, low prices on the part of even one man do a great deal of harm to the honey business. The other fellows who are trying to get fair living prices should buy him out before he ruins the market.

FARMERS' BULLETIN 1198, "Swarm Control," has just been issued by the



Farmers' Bulletin on Swarm Control.

United States Department of Agriculture. This is a 48-page bul-

letin, with 13 illustrations, written by Geo. S. Demuth while he was connected with the Bureau of Entomology at Washington, D. C. It contains a discussion of the succession of events within the hive, which lead up to swarming, and the factors which influence the tendency to swarm, such as heredity, character of the hive and the combs, the locality, and the season.

It points out that swarming can be greatly reduced by the use of good stock, by the use of well-arranged hives, together with

good combs in the brood-chamber, and by management which prevents the congestion of bees within the brood-nest. It gives directions for hiving natural swarms and managing them so that the crop of honey is not reduced when swarms issue during the honey flow. It also gives directions for antipating swarming when operating out-aparies or when the beekeeper is away from home during the day at swarming time. It describes simple manipulations to prevent swarming when producing extracted honey, and points out the conditions under which they may be expected to be effective.

This bulletin can now be had for the asking by writing to the Department of Agriculture. In doing this it is well to order it thru the Bee Culture Division, Bureau of Entomology, Washington, D. C.



THE BUREAU of the Census, on August 3, released preliminary figures from the 1920



The 1920 Census Figures.

census of agriculture on the number of colonies of bees and the production of honey and beeswax in the United States, with comparative figures for 1910. According to these figures the number of colonies of bees on farms on January 1, 1920, was 3,476,346 as compared with 3,445,006 in 1910, an increase of 31,340 colonies or .9%.

The States reporting the largest number of colonies on farms in 1920 were Texas with 235,111, Tennessee with 191,898, California with 180,719, North Carolina with 163,956, Illinois with 162,630, Missouri with 157,678, Kentucky with 156,889, and Alabama with 153,766. These are the only States which reported over 150,000 colonies.

The production of honey by these bees on the farms in 1919 was 55,261,552 pounds as compared with 54,814,890 pounds in 1909, an increase of .8%. California leads in the amount of honey produced in 1919 with 5,501,738 pounds, followed by Texas with 5,026,095 pounds, New York with 3,223,323 pounds, Iowa with 2,840,025 pounds, Wisconsin with 2,676,683 pounds, and Colorado with 2,493,950 pounds, these being the six States reporting more than 2,000,000 pounds.

The production of wax was 826,539 pounds in 1919 as compared with 904,867 pounds in 1909.

It is unfortunate that the Census Bureau listed only colonies of bees on farms, for by doing this they have not included the holdings of many beekeepers who live in cities and villages, as do many who are extensively engaged in honey production. The figures, therefore, represent largely the holdings of those who keep but a few colonies, which in most cases are sadly neglected, as shown by the low yield per colony. For 1919 this must have been less than 16 pounds.

As an illustration of the way it works out

to list only bees on farms, the District of Columbia reported only 19 colonies for 1920 against 151 in 1910. Here the growth of the city of Washington is gradually eliminating the farms but not the bees. The editor saw nearly 200 colonies of bees within the District of Columbia in 1920. He was not hunting for apiaries, but saw only those which happened to come to his attention.

The census figures are significant, however, in that they show that bees on the farms have actually increased during the past 10 years. When noting the enormous increase in the holdings of professional beekeepers in many parts of the country during the past few years one gathers the impression that the bees of the country are passing from the hands of the small beekeeper into the hands of the extensive producer, but the census figures show about 90 per cent as many beekeepers as in 1910. Apparently the honeybee is holding its own on the farms and increasing with great rapidity in the hands of professional beekeepers.



IT IS impossible to estimate the enormous increase in honey production in this country



The Silver Lining Now Appears.

during the past decade. Many producers have doubled or tripled their number of colonies within the past few years, forging ahead in production almost by leaps and bounds. During the last years of the war and up to last year the high price of sugar and the difficulties in obtaining it caused an abnormal demand for honey for manufacturing soft drinks, for making ice cream, and for many other manufacturing purposes, and at the same time the foreign demand was excessive. Under the stimulus of high prices and the good demand for honey, beekeepers everywhere have greatly increased their output, and they were, therefore, not at all prepared for the slump that came late last summer, since which time many of the outlets, thru which honey had been moving so freely, have been almost, if not entirely, closed.

The silver lining to the clouds now darkening the beekeepers' horizon is the fact that beekeepers are now being compelled to sell more of their honey locally, inducing people to eat honey who have not been eating it before. If during the coming fall and winter every beekeeper who can possibly do so will push the sale of honey locally, buying more from some other beekeeper if he runs out, we should emerge from the present situation with a greatly increased demand for honey for table use in this country. If, as a result of a campaign of selling honey locally, the American people should acquire the habit of buying honey in five-pound pails, the industry will then be ready for another era of expansion in production to supply the tables of the American people with this most wholesome sweet.

I ONCE made a catch of fish so big that when I innocently told my friends about it they showed very plainly they believed I had fallen into the error of all other amateur fishermen—that of telling a whopper. I then learned that “Truth is often stranger than fiction.” Fully realizing that I have another story, just as true, I am wondering whether my friends will not think that I am telling another “whopper.” Be that as it may, I only ask the skeptical to investigate.

Before I come to my story proper I should explain that it was my privilege to attend the big field meet held in the interests of this new annual sweet clover at Newbern, Ala., on July 21st last. Invitations were sent out all over the country. Notwithstanding it began to rain in the morning, something like a thousand people from all over the country attended that meet to hear Prof. Hughes and other speakers tell about sweet clover in general and Hubam in particular. No one who was present, after

THE HUBAM SWEET CLOVER.

Wonderful Possibilities of this New Annual Sweet Clover Shown at Field Meet in Newbern, Alabama

By E. R. Root

hearing the talks and witnessing the demonstrations, could fail to come to the conclusion that this new plant gives promise of revolutionizing agriculture in

portions of the North and South where land has been worn out by continuous cropping.

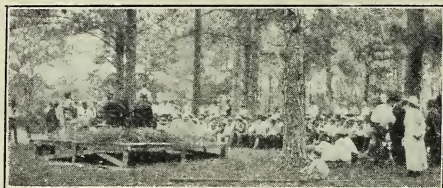
In the South cotton, and in the North and West corn, have been grown so many years in succession that there is a crying need of a quick-growing legume that can be plowed under three months after it is planted. The new annual so far surpasses anything else that it will be a great boon for restoring the soil with nitrogen and humus.

Newbern is about 35 miles west of Selma, almost in the center of the Black Belt where so much sweet clover (biennial and annual) is grown, and where so much sweet clover honey is gathered. East, west, and north in this Black Belt there are thousands and thousands of acres that will grow not only all varieties of sweet clover, but white clover, alsike, and alfalfa. As soon as men of capital and men of vision in the North



At the extreme left, the discoverer of the Hubam, Professor Hughes, addressing an audience of 1,000 people who came to hear and see him and learn something about Hubam clover.

realize what can be done in this deep rich Black Belt they will go down and help to develop it. When they do start to growing legumes this land will literally flow with



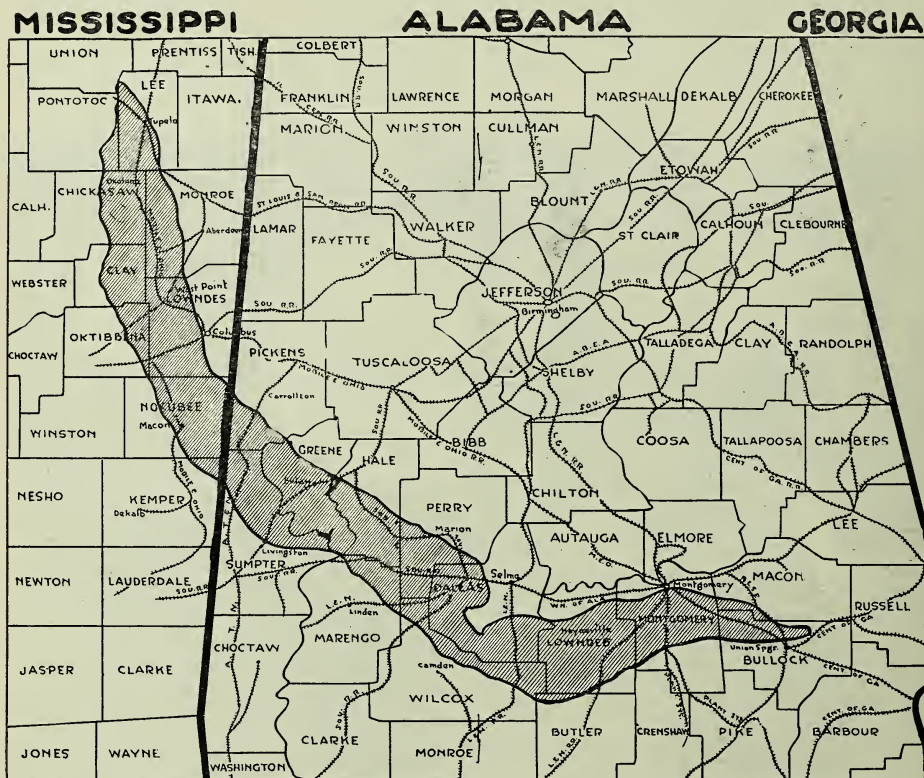
A partial view of the crowd listening to the speeches at the Hubam Field Day meeting.

milk and honey. Sweet clover, or, in a broad sense, the legumes in general, will make it possible to produce milk and butter as was never done before in the Southland. As the Black Belt is the natural habitat of the new clover, there is a possibility and even a probability that this whole area

may become one of the greatest bee paradises in the world.

What do I mean by the Black Belt? It is a strip of territory (see the map) approximately 25 miles wide that runs across the middle of Alabama, gradually extending northwest until it reaches the northeast part of Mississippi. The soil is deep, rich, and black, containing a large amount of lime. This black strip or belt has furnished an enormous growth of the biennial sweet clover; and it is probable that the annual sweet clover has been growing there for years. While perhaps one or two in the region realized that they had something that would mature in a year it took a man like Prof. H. G. Hughes of Ames, Iowa, to realize fully its immense economic importance to the country.

Among the experimental test-beds at the Ames College, Prof. Hughes discovered one melilotus that was head and shoulders above its neighbors. He immediately became interested; and after some inquiry he



Reprint from Survey of U. S. Department of Agriculture.

THE LIME LAND BELT OF ALABAMA AND MISSISSIPPI—THE GREAT LIME BELT OF THE SOUTH.

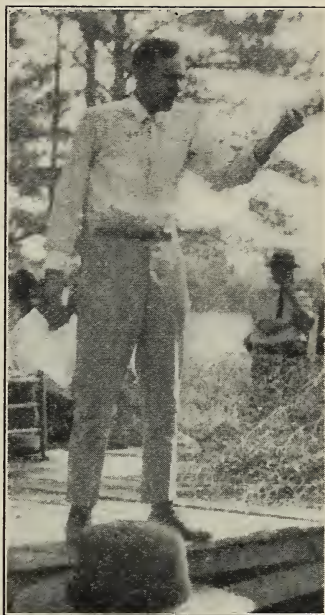
The Black Belt is a stretch of land about 25 miles wide. It runs transversely across the State of Alabama and up into the northeast of Mississippi. It contains approximately three-fourths of a million acres of rich black soil, containing a large amount of lime. It is, therefore, well adapted for the growing of legumes of all sorts, especially sweet clover and alfalfa. The Black Belt near Selma is the home of the new annual sweet clover, or Hubam, as it is called.

learned that its native home was in Alabama, which he soon visited. To make a long story short, the Alabama Hubam Clover Association was formed at Newbern, with Prof. H. G. Hughes as the Agricultural Adviser. This organization has now 1,200 acres growing Hubam clover seed. In spite of the floods in the spring, during which the young plants were submerged under water, and in spite of the drouth of nine weeks, this new Hubam clover has grown and flourished. Some of the members of the association have actually secured as high as \$990 per acre in seed alone.

There are about 500 acres more at De Graff, Ohio; an equal acreage in Texas, Michigan, and North Dakota. While the seed has been selling for \$10.00 a pound it can now be had for \$2.50. The demand for it is so great that it will doubtless hold this figure for the rest of the year.

The people in this Black Belt are, of course, just discovering that they have a gold mine at present prices. There is something like three-fourths of a million acres of this land, much of it undeveloped; but the most profitable crop grown on it now is, without question, the new annual sweet clover. While I was at Newbern the clover was being cut with an ordinary grain-binder, and the seed was being gathered.

After the seed has been taken from the plants, and even tho the plants looked dry and brown, they make splendid fodder and silage. According to Prof. Bishop, one of the extension men in Alabama, who has had a



Prof. P. C. Bishop, formerly Field Extension Agent of Illinois and now of Alabama, making the statement that it had been discovered that white sweet clover (biennial or annual), has more of actual protein or food value than alfalfa. He explained also how sweet clover was being grown more and more in Illinois.

wide experience with the old biennial sweet clover in Illinois, there is more actual protein in sweet clover than in alfalfa.

At the outset I said that fact is stranger than fiction. Now for the "facts."

This annual sweet clover will develop as much fodder or humus in three months as its near relative, the old biennial sweet clover, will in 21 months. In a given time, side by side in the same soil, tests made at the Ames College, in Iowa, showed that Hubam would produce by weight six times as much as the medium red clover; five times as much as the biennial yellow, and three times that of the biennial white. It has yielded slightly better than 3000 pounds of water-free material per acre.

As to honey, the Hubam clover will yield in quantity and quality as much as its near relative, the white biennial sweet clover. This is

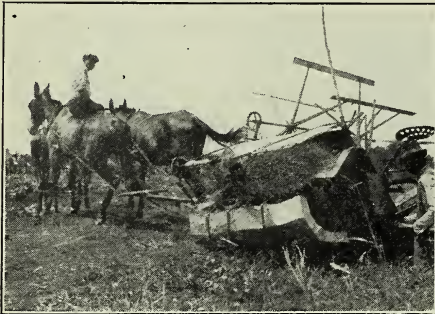


Courtesy Alabama Hubam Clover Association.
Nos. 1 and 2—Hubam and the annual yellow sweet clover planted the same day, cultivated and raised in the same row and under identical conditions. Nos. 3 and 4—Hubam and the old biennial sweet clover planted the same day, cultivated and raised in the same row and under identical conditions.

proved out in North Dakota, Ohio, and Alabama. In and around Newbern there is nothing but the new Hubam clover. Beekeepers there assure me that it produces a large amount of fine honey. Its quality, if I am any judge, is equal to that of any honey produced in the United States. More and more, bees are being moved into the sweet clover regions of Alabama, Ohio, and Michigan. At De Graff, Ohio, where there are 500 acres of this clover, we have just placed a carload of bees. It is perfectly wonderful, says our man in charge, to see how those bees are going after blossoms of this clover.

There is a feeling among the beekeepers where Hubam is growing that it is a better honey plant than the biennial because it grows so much faster.

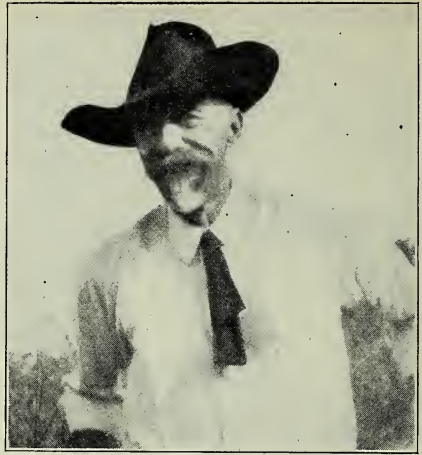
I visited one breeder of bees in Alabama who told me he had a quantity of seed that he thought was biennial sweet clover. We went over the fields in his vicinity and found a large amount of what I called annual sweet clover growing wild. I said to him, "If you have the annual clover seed (and it looks as if you had) it is worth ten times the biennial melilotus."



Hubam clover is cut with an ordinary grain binder. Galvanized sheet metal is folded around the machine in such a way as to catch any loose seed that rattles out during the operation of binding.

You may imagine he became interested—a little gold mine in his locality, and he did not know it! I would give you his name, but he is not sure that he has the annual, and neither am I. But you may rest assured he will investigate. He was going to sell his seed for approximately \$2,000; but when the fact crossed his mind that the seed was actually worth ten times that amount, or \$20,000, his eyes began to shine, and he spoke with a smile, "If you can find another gold mine under me I hope you will come often."

While Hubam can be grown from seed sown broadcast it is much better to plant it in rows where it can be cultivated like corn. When sown this way it takes only about three pounds of seed to the acre. If sown broadcast it would take three or four times that amount of seed, and Hubam is at present too expensive for that.



The smile that would not come off because he was one of the men who produced \$990 worth per acre of Hubam clover seed near Newbern, Alabama.

The question will be asked where this seed can be grown. It will thrive wherever the ordinary white clover or white or yellow sweet clover now grows, and that means practically all over the North and West.

While it will grow where there is no lime, it will do far better where there is at least some lime in the soil.

Now, just a word about Prof. Hughes. He might have made himself a millionaire. In the course of the next 10 or 20 years he will have added millions and millions to the wealth of the land and to the farmer. After he made his great discovery of the annual sweet clover he could have sold the seed at a dollar a seed; and as the price came down he could have kept ahead and made himself more than a millionaire. Instead of this, however, he gave the seed and his discovery to the world. Modest, almost to a fault, he is the last man to sing his own praises. I tried to secure from him some data about his lifework, but not much did I get from him. He was free to tell me everything about this new sweet clover.



A Hubam clover field near Newbern, Alabama, after the binder had cut the crop.

HONEY is the most wholesome sweet known to man. It is said to contain vitamins of the highest value and also small amounts of all

the minerals used in the building of animal tissues. It is, therefore, unnecessary for us to defend the use of honey, but rather we should publish these facts to the world and endeavor to search out the real reason why our Creator established this food on earth. The trouble is not with honey, but rather with the present condition of the honey industry; nor do we need to worry about honey production; a plentiful supply will be brought forward when it is needed. Every person engaged in any phase of the industry must concentrate on but single ideas.

Effect of Supply and Demand.

Much has been said about marketing and distribution of honey, but there are certain fundamental factors which control the honey market.

Supply and demand are supposed to control the price of every article of commerce. To a more or less degree this is true, but in the last analysis the producer and the dealer are responsible, to the greatest extent, for the supply and demand. The general public are but the medium thru which the producer and the dealer work. The average producer of farm products has not the slightest idea as to the value of his product. He produces according to his conditions and turns his crop over to the dealer. The dealer is not concerned in the value of the crop, but rather in the per cent he may secure in handling it.

The consumer's part in the deal is more or less passive. He buys not because of necessity, for there are always satisfactory substitutes, but because there is created in his own mind a demand for a certain thing. This demand may be curtailed by inability to pay, but the number who are able to pay is always sufficiently great to carry the supply if the medium used in creating the demand is sufficiently forceful. Think of the many impractical devices each and every one of us has bought from time to time because of the forceful persuasion of some street vender.

How Much Will Consumers Pay?

Every family in the United States today is eating from one to many of our common vegetables or cereals in a new form, but changed by some manufacturing process. They pay many times the price at which they might buy the food in its best form, and frequently the more nutritive part is lost or destroyed in manufacturing. How much is honey worth as food? How much can people afford to pay for honey? I do not be-

BASIC MARKETING PRINCIPLES

Who is Responsible for Supply and Demand? Various Channels from Producer to Consumer

By H. F. Wilson

sugar are parallel products, the consumer wants to buy honey for the same price as sugar. If we compare honey with glucose syrups, he makes the same comparison. But does honey not rank higher as a food than sugar or glucose? Honey should be classed with first-grade preserves, jams, and jellies, and should be sold on an equal price basis. Furthermore, honey should be sold on standards of quality and classified in such a way that the consumer can always buy a standard product. The great majority of people have absolutely no idea concerning the different flavors of honey, and the great conglomeration of flavors which are fed to them does not create, but rather destroys the desire for honey.

High-grade honey will sell in wholesale lots from 6 to 18 cents per pound in 1921-1922 and from 10 to 30 cents per pound retail. All grades of honey from the poorest to the best will be put on the market as honey. Those who get the poorest perhaps may never buy honey again. Those who get the best will continue to buy until they get a sample of the poorest, and they too will likely quit. There is some honey still in the hands of the beekeepers which was produced in 1920, but the crop for 1921 will be short, so that if the honey now on hand can be evenly distributed there is no need for below-cost selling. Honey is a pure sweet, and as a food is worth as much as high-class jams and jellies. The best grades of honey ought not to retail for less than 25 cents a pound in pails and not less than 35 to 45 cents in pound jars. If we figure that the average cost of production is ten cents per pound, then the retail price must be maintained near the above figures or else the large distributors will be unable to carry the business.

Function of the Middlemen.

There is always a great deal of talk about doing away with the middlemen and carrying the product from producer to consumer; but there is only one way in which the dealer can be eliminated, and that is for the beekeeper to peddle his own crop. Many beekeepers live in territory where this is impossible, and so it becomes necessary for them to sell their honey thru a dealer. Brokers, jobbers, wholesale merchants, and retailers must be paid for their efforts, and they must have a small profit in order to do business. These agencies are absolutely necessary to get distribution, and cannot be eliminated under our present marketing system. A study of the marketing

lieve that any single person can today answer those questions satisfactorily. How much will the consumer pay for honey? If we say that honey and

problem shows that the consumer must expect to pay about 100 per cent more than the producer received. This is all charged to shipping and selling. Under these conditions if the producer received 12½ cents a pound, the retailer must receive at least 25 to 40 cents a pound in order to make a profit of from three to five per cent. Furthermore, if the beekeeper goes out and sells at 15 cents per pound retail, then he enters into direct competition with the dealer, and the dealer is forced to reduce his price, thereby lowering the price which he can afford to pay to the producer. In the end this affects the wholesale price of honey, and the beekeeper at large must expect to receive not more than seven or eight cents per pound.

Make the Industry a Big Business.

It is unnecessary to state that the honey business is suffering from lack of organization, for every one who reads this article is aware of the fact. What we need now is active participation in every legitimate co-operative movement for marketing honey. Furthermore, if none exists in your county or state, start one.

The bee industry cannot thrive on eight-cent honey, and neither can it progress as long as it continues in its present condition. What is needed is business co-operation among beekeepers—co-operative selling and standardization of grades and packages. When 50 per cent of the beekeepers in the United States can realize this and get together even in small groups, there will be some chance for the development which the bee industry deserves.

Why Not a Standard Tin Package?

The National Canners' Association has for a number of years been educating the public to buy in tin instead of glass because the tin container is much cheaper. Many of our beekeepers now prefer glass both for small packages and even for one-half gallon and gallon lots, and no doubt the glass container will always have an important place. But there are two sizes of tins which could be used to great advantage and can be made popular the country over. These are the two-pound can and five-pound pail.

The great majority of people should never be sold more than five or ten pounds of honey at one time, and frequently it would be better if it were only two pounds. Every package should contain full directions for liquefying honey, as there are thousands of housewives who have partially filled pails of candied honey on the pantry shelves and who after leaving it there for two or three years finally throw it away because they do not know how to render it suitable for table use. Of course a few use candied honey, and like it, but the great majority do not.

Both the two-pound can and the five-pound pail are easily shipped by parcel

post, and, if we standardize our product so as to have it always the same, the public will quickly come to buying only in tin.

It is said that the housewife buys mostly on appearances; but this applies only to products of variable nature, and honey is certainly one of the variable products. Let her buy three packages of anything that is alike in quality, and she will continue indefinitely to buy on faith until she runs afoul of that can of dark-colored, badly flavored, or fermented honey—and then, good-bye!

It costs from 12 to 15 cents a pound to pack and sell a pound jar of honey exclusive of the cost of the honey, while it can be put up in five-pound pails for less than half that cost. The five-pound pail is today very popular in a few restricted districts, especially in the West and the Southwest. However, this size of package is not widely known in the East where most of the honey is sold, and a great deal can be accomplished in a better distribution of honey if more publicity is given to this special package. Sell a new customer who is not accustomed to honey a 60-pound can and be prepared never to sell that customer again. Sell him the 60 pounds in five-pound pails distributed over a longer period of time so that the family does not become fed up on honey. and in years to come the same customer may be developed into a sixty-pounder. What is likely to happen if you sell such a customer 60 pounds at one time? He finds himself with a big supply and starts in eating it at every meal. In a few months his appetite is glutted and he hates the sight of honey. Sell him a five-pound pail, and he eats it more slowly. When that is gone, it leaves a pleasant taste with him, and after a few weeks without honey he is ready for more.

Local Advertising.

With a little judicious advertising and salesmanship, the producer can practically control his local market, not only with individuals but with the growers as well. Unless the producer makes more of an effort to get better local distribution, the price of honey will continue to be too low for profitable production. This price will range from six to ten cents a pound in 60-pound cans at the yard, while in the stores on the grocer's shelf it will sell for 20 to 25 cents a pound in five-pound pails. The bottler will not make the extra profit because the difference will be used up in canning and selling. In other words, the producer can earn 50 to 100 per cent more on his crop by being his own salesman, if he will use only up-to-date methods in preparing his product and getting it on the market.

Practically no information concerning honey is ever put into the hands of the public, and very little is being done to create a public demand for the best grades of

honey. Every beekeeper should have a little two or four page pamphlet extolling the good things about honey, and his own brand in particular. Many attractive little cards, with a few words concerning honey, can also be provided.

Above all we should use a large attractive poster showing a picture of some kind and having honey printed in a conspicuous place on the poster in large letters. The following extracts are offered:

Something that is sweet, yet healthy. Honey, the health food.

Honey is a more healthy sweet than sugar and contains nothing that is harmful to the youngest child.

Honey, the health food. Honey is the best sweet for children; it contains vitamins.

Use more honey.

Excellent on cereals, wheat cakes, hot biscuits, coffee, ice cream, and fine for preserving fruit.

Try it!

Honey cannot spoil, it will keep forever. All pure honey will granulate in time.

To liquefy, place the container in a vessel of warm water and leave it until the honey is clear. Honey should not be kept in a cold place since the cold hastens granulation.

The human body requires regularly a large amount of carbohydrates or sugars, which are taken up by the blood and distributed to the muscles where they produce energy. Honey not only supplies this need, but it also contains a number of the mineral elements essential to the body, such as calcium and phosphorus for the teeth; iron, sodium, and potassium for the blood. Most sweets are too highly refined to have these minerals. Honey is a natural sweet and not a substitute or a manufactured product. It is an easily digested sweet and is recommended by physicians for patients suffering from digestion. It is also helpful as a preventive against coughs and colds, and is a mild laxative. It has been proved that germs causing typhoid fever, dysentery, and other intestinal diseases cannot live in honey.

Madison, Wis.



SELLING HONEY AT ROADSIDES

*How Tons of Honey Can be Sold
at Good Prices at Little Expense*

By Robinson Newcomb

PEOPLE who would buy honey, were its claims properly presented, are daily passing our homes by the thousands. Why not try to reach these thousands as they pass our doors, instead of spending time in going to their doors? Why not let them do the traveling instead of our doing it? Why not tell these people that we have honey for sale, and tell it to them in such a way that a large number of them will stop and buy?

To tell those who daily pass and repass our homes that we have honey to sell, is easy. To tell them in such a way that they will stop and buy is not so easy. The motorist must know that we have honey for sale in time for him to stop his machine before getting past the house. It takes time for a motorist to make up his mind that he wants to stop and buy honey, and no motorist cares to stop suddenly. To get the largest number of machines to stop, it becomes necessary to have the signs large enough to be read at 400 feet. This necessitates having two signs, one facing up and one down the road. The signs can be read further away if the letters are white on a dark background, than if the letters themselves are dark; and it can be read later in the evening, just the time when many people are out riding. Black, dark blue, or red, and even green may be used for a back-

ground, the colors depending to some extent on the surroundings. A neat sign on the lawn will usually have a green background, while one on the

road may be any of the other colors. Signs are so common now that something different is necessary, if the sign is to be really effective. For this reason a streamer across the road, or a sign suspended above the road, is more effective than a simple sign, beside the road, altho the two work to the best advantage when used together. A streamer may easily double the number of calls you will receive.

How to Make the Signs.

Signs may be bought from supply houses, or may be painted on smooth boards or on metal sheeting. Often old signs may be found and repainted. Streamers are more difficult to make. The canvas must be strengthened at the ends, so that the strain of rain and wind storms will not cause the ropes to rip out thru their fastenings; the ropes must be further apart at the supports than at the streamer, so as to keep it taut and the letters legible; the canvas must be fastened so it will not creep; the letters on one side must not show thru on the other, which usually means doubling the canvas; and the streamer must be placed so as to be low enough to be seen, but high enough to escape damage from high loads of hay.

Signs and Surroundings Should be Distinctive.

Something distinctive about the sign and the lawn will not only aid in causing the motorist to stop, but will also be a big help in bringing them back again. It is much easier for him to remember your place if there is something distinctive about it; he is much more apt to think of your honey



White lettering on a dark background is easily read by the approaching motorist.

each time he sees your distinctive features than he would be were he to see merely your sign and house; and it is much easier to direct others to you if you have something which distinguishes you from all others who have honey for sale. Two or three easily read words will differentiate one sign from another, and are enough to make one sign a sign to be remembered where another is forgotten. Too many words are to be avoided, as the motorist can not read many easily, nor would he if he could. Such words as "Best Ever," "Try It!" "No Sale Sunday" may be used. Each will want to choose his own. It is not a difficult matter to get something distinctive for the lawn. In most communities it is possible to get an old skep, such as is pictured here, or some quaint hand-made hive of some sort.

Signs are not the only things which help to induce the motorists to stop. Hives of bees that are visible from the road are a tremendous help. People are suspicious of extracted honey, and too often they are even suspicious of comb honey. Hives of bees that are in sight tend to inspire confidence, as well as being an added notice that we have honey to sell. If it is not possible or advisable to have bees visible from the street or close to the house, empty hives may be used instead.

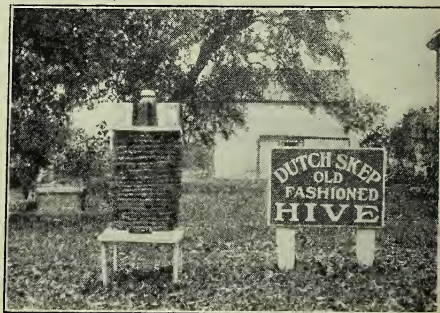
People do not like to buy things about which they know but little, especially if the thing in question has a rather doubtful reputation, as honey, extracted honey especially, often has. If they are informed about honey they will be better customers. County papers are often pressed for news and welcome interesting articles from subscribers. Leaflets may be obtained from supply houses and publishers of bee journals, telling about

honey, and these may be profitably given to those who stop. Propaganda of this kind will help sales at the door by increasing confidence in honey, as well as help our grocers dispose of the honey we furnish them.

Necessity of Good Salesmanship.

Getting the passing motorist to stop is less than half the battle. To be successful it is necessary to act the salesman, and sell him what he should have, and not what he thinks he wants. To make the greatest number and the largest sales, it is necessary to please him at all points, too. If the lawn is neat, and the special feature on it interesting, and if your appearance is prompt, the prospective purchaser will be pleased. He may not know it, but he is in a mood to buy more than he had planned to buy when he stopped. If he goes around to the back door, as he usually does, and finds the premises neat, we are almost sure of a sale, but we are surer of one if we meet him before he gets to the back door. The impressions he gets before meeting you count greatly for or against success.

The first question usually asked is, "Do you have any honey?" Sometimes it is, "How much is your honey?" If we are to play the salesman it is better to avoid answering this question direct. Our customer knows very little about honey; in nearly every case he does not know what kinds of flavors there are, how the honey is or should be put up, or how the quality may vary. If we answer his question at once he thinks only of the price—that is the only thing about which he can think. So we tell him briefly what kinds of honey we have, what



Distinctive signs and surroundings help the motorist to find the right place when he comes back for more.

high quality it is, and the uses of each different kind. We try to find out what kind of honey he has bought, if he has ever bought any; then we tell him how our similar kind of honey compares with what he has had, and how possibly another kind might suit him better. Finally, we tell him about the price.

It is necessary to study each customer somewhat, and to be able to make a good guess at the amount of time he will be will-

ing to give us. The talk must be varied accordingly. If the customer is sure he wants one thing, do not press another hard; but mention it, tell him you think he would very possibly like it even better than this he is getting, and tell him that if he likes this, as we know he will, to try a little of the other the next time he comes back. Try to drive home the idea, not making your attempt too apparent, that he is coming back again. If we are salesmen when we meet our customers at the door, we can sell several times what an order-taker would sell.

Customers appreciate service. If we meet them promptly, are courteous, have the change ready promptly, and give them honey done up attractively, they will leave in a more pleased and friendly frame of mind; they will leave expecting to enjoy the honey, expecting to come back again, as they probably will, especially if the quality of the honey equals the quality of the service.

Containers and Prices.

It is possible to purchase jars of all sizes, and tinted as well as clear glass jars. It hardly pays to have very small jars; the pint is small enough usually. Now and then a customer wants the "smallest you have," and if the pint is the smallest, we sell more than we would if the six-ounce jar were the smallest. Clear glass jars show up light-colored honey best. Slightly green jars may be used advantageously for honey that is very yellow, since the green glass makes yellow honey appear white.

Honey will bring as high a price if it is sold at your home as it will if sold anywhere else. Those who are able to afford a machine are willing to pay a reasonable price for what they buy. They expect to pay a good price for good articles, and too often they do not believe the article to be good unless it costs quite a good deal. If your customer pays a good price for his honey and expects the honey to be very good, he is apt to enjoy it much more than

if it cost him but little, and he is more apt to come back for more. I sell more comb honey for 50 cents than I do at any other price, and my prices vary from as low as 30 cents up to 50, depending on the grade. It is not at all necessary to undersell the grocer. It will not help our sales, but it will hurt his, and it will not help to increase the respect in which honey should be held.

Old customers appreciate it if we recognize them when they come back, instead of acting as tho we had not seen them before, and telling them the same things over again that we told them the first time they came. When they come back again and again, we have an opportunity to tell them something about the bees and the honey, thus increasing their interest in honey, which they will naturally communicate to others.

One big temptation of roadside selling is the temptation to sell on Sunday. Possibly more cars pass our doors on Sunday than all the rest of the week put together, and those who pass on Sunday are more in a mood to buy than they are any other day. By actual count, 400 cars an hour pass my door Sunday afternoons. Despite this, I do not believe it pays to sell honey on Sunday.

Roadside selling has advantages over other methods, in that it brings our customers to us, saving time and strength; in that it develops the much talked of "home market"; in that it means a steady income, instead of our getting our money all in a lump. Roadside selling, further, is a big advertising work. Our signs remind passing motorists of honey day after day, bringing many to buy honey who would not otherwise ever have thought of it. Roadside selling will, however, not sell your honey without effort on your part. Like all other methods it requires headwork and salesmanship, as well as a product worth selling. With these, properly used, roadside selling will be a big help in the disposing of our crops of honey.

Brooklyn Station, Cleveland, O.



IF producers generally would endeavor to sell locally as much honey as possible, it would, no doubt, largely increase consumption and relieve the congested condition of the market. Shipping to wholesale markets results in lowering the market price. There are some who argue that those who are qualified and equipped for production should specialize in that line, and that distribution should be entirely in the hands of others who by nature or other-

DEVELOPING LOCAL MARKETS

*Reducing Cost of Marketing.
Increasing Sales Thru Local Dealers. Value of Local Advertising.*

By E. S. Miller

wise are qualified as salesmen. Theoretically this is the more efficient mode of handling the business, but in practice there are some conditions which prevent the successful working out of such a system.

Great Waste in Distribution of Honey.

In the first place, there are many of our towns and smaller cities which are not adequately supplied with honey thruout the year. The same is true in many parts of

the larger cities, and many people do not eat honey for the simple reason that it is seldom or never brought to their attention. Then, again, if the producer ships to the large buyer in a great commercial center, the product passes thru many hands, each handler exacting a toll, until the cost to the consumer often is two or three times the price paid the producer after he has delivered it to the wholesaler and paid the freight.

Transportation charges to and from the large cities are an important item of expense which may be eliminated by local distribution. To illustrate: We sometimes have orders for small lots of honey to be shipped to Maine, Florida, the Dakotas, and to many other distant points. Possibly the next neighbor of some of these buyers has a large quantity of honey which he would be delighted to sell at less than the cost of transportation. Honey is shipped to the far East and back again. It is shipped north and shipped south. I am wondering how much of the California honey in the New York market gets back as far as the Rocky Mountains. Not long ago I happened to come into possession of a case made to hold two 60-pound cans. The name of the producer was not on the box, nor was the name of the retailer who sold the honey to the "ultimate consumer." However, there were cards and markings indicating that it had passed thru the hands of at least five dealers. Apparently it had been purchased by a dealer in the West, shipped to Chicago, thence to Michigan, thence to another point—Ohio, I think—thence back to Chicago, thence to Hammond, Ind., where it was distributed by a retail dealer.

Much of this expense and waste can and should be eliminated, and right here is an opportunity for state and national associations to render great assistance to the industry by furnishing suitable information to producers and to prospective buyers. Of course, a system for getting this information and for its distribution must first be worked out.

Grocer Does Not Create Demand. This Should Be Done by Producer.

There are many ways in which we may work a given territory for the sale of honey, say, a small city or a number of towns. Many of us do not like canvassing or peddling; besides many of us could not make a success of it if we were to try, but judicious advertising and keeping retail grocers constantly supplied will dispose of many tons of honey at a fair profit. In order to succeed in selling honey in pails thru the retail stores one must "educate" both the grocer and the buying public. The average grocer is not a salesman. Instead of calling attention to his goods and convincing his customer as to their merits he waits for the customer to ask for what is wanted. Instead of creating a demand he merely tries to supply a demand already existing. If

you leave a dozen pails of honey he usually will put them out of sight, and on your next trip calmly inform you that he "has no call for it." How shall we proceed in such a case? Well, to be successful it is important to give him some instruction in the art of selling honey. "See here, Mr. Storekeeper, if you put that honey under the counter you'll not sell it in a thousand years. People know you have flour and potatoes, but if you sell honey it must be where they can see it. We must let them know that you have for sale Miller's honey, best in the market. Let me arrange a display and we'll see how it looks. There, doesn't that look good enough to eat? Here is a nice display card that will help to sell it. Now, Mr. S., I am going to advertise this honey in the daily papers. I'll make you a cash price 25 per cent less than the advertised retail price, and if it doesn't sell I'll take it and pay your money back. Call me up as soon as this is sold and I'll bring some more. Thank you, sir."

Of course, some grocers, like some other people, are grouches and some won't learn; but, if you mean business and are doing business in a business way, they will not be long in coming to recognize the fact. They will no longer say, "I'll give you so much for your stuff if you will take out in trade." They will ask, "What is the price, Mr. Beeman, and at what price shall I sell it?" There are some who are inclined to make an undue profit, but this is easily controlled by naming the retail price in your advertisements. We usually run a local ad of from three to five lines, three insertions every week or ten days, aiming to give some item of interest or information and giving something different each time. The following are examples:

Miller's Honey—Most healthful sweet. 5-pound pails only \$1.25. Your grocer or phone 556R.

Honey in pails is not expensive—and it's delicious. If your grocer doesn't sell it, phone Calumet Bee Farms.

Did you ever try granulated honey? Spreads like butter. Better than candy for the children. You can get it at Bunn the Baker's.

To Obtain Free Advertising.

We have had some free advertising. We once succeeded in making friends with a reporter of one of our local daily papers, took him out to our yards, fed him up on honey, showed him the bees, how queens are reared, explained the ancestry of the drones, the process of extracting, etc., etc. Well, a two-column article on the front page, telling of the good things he saw and tasted probably added somewhat to our prestige as well as to our sales.

The best advertisement is the honey itself. For a number of years we have enjoyed a considerable mail-order trade in which cash in advance is the rule. Shipments are made by parcel post, express, and

freight. A complete list of names of purchasers is kept; and a circular letter containing price list, together with a printed order blank, is sent out semiannually or oftener to our former customers. People who are pleased recommend the honey to their friends, and thus the list of purchasers grows. For mailing we prefer the 6-pound screw-top can with corrugated paper case. For local sales and for express shipments the 5-pound pail is preferable. It is not desirable to have too many kinds and sizes of containers. We have had some difficulty in shipping 10-pound pails of liquid honey for the reason that covers sometimes leak or come loose even when soldered at two or three points. We have not found it advisable to encourage consumers to buy honey in 60-pound cans, as the average family will not consume so much before becoming tired of it. It becomes granulated, is put aside, and that family seldom buys any more honey. Many would relish honey from a fresh lot, who would not eat honey from a can that has been standing around, granulated and "dug into."

Roadside Selling and Canvassing.

Along the principal highways traveled by motorists are to be found many booths and small stores where refreshments are sold. By placing suitable signs and furnishing a supply, a considerable quantity of honey may be sold to tourists. If one lives near the highway the apiary itself will furnish a good background and will convince city tourists that it is "real farmers' honey," which, next to "wild honey," is most delectable.

I have thought that a good scheme for introducing the sale of honey in a small city would be to employ one or more lady canvassers to go from house to house, taking

orders, the honey to be placed in a few of the leading grocery stores and to be delivered by the grocers upon orders taken by the canvassers. In this way a thoro canvass of the city could be made. Honey as a food would be brought to the attention of the public, and the dealer would become aware that there is a "call for honey."

In delivering to retail dealers it is convenient to have a light truck, as one can deliver the goods regularly and receive cash upon delivery. If one depends on shipping, most merchants expect 30 or 60 days' credit, and it is often more difficult to collect than to make a cash sale in the first place. Then there is the boxing for shipment, which is costly in time and labor as well as in money, and the losses and delays in getting the goods delivered. A truck makes it practicable to furnish a supply of honey—comb, bottled, or in pails—to every retail dealer in foods whose business is sufficient to warrant it. Whatever plan we may pursue in disposing of the crop, I believe that, except in rare instances where we know the parties, it is important to do business on a cash basis only.

If every producer will see that his own locality is adequately and constantly supplied the present oversupply will be greatly diminished. If his crop is short let him buy from other beemen who have more than they can dispose of locally. Don't throw your crop on the wholesale market at half price unless compelled by circumstances to do so. Don't load up your retail dealer and then retail honey all about him at wholesale prices. It isn't fair. It isn't good business. A man who does this ought not to succeed—and he won't.

Valparaiso, Ind.



TWO years ago I built a concrete bee-cellar for wintering my 300 colonies of bees. At that time I was unable to get any information regarding the erection of such a cellar as I

UNDERGROUND CELLARS

*How to Build a Concrete Bee
Cellar Not Influenced by Outside
Temperature Changes*

By D. L. Woodward

planned on building, until I learned from The A. I. Root Company that they were just completing one similar.

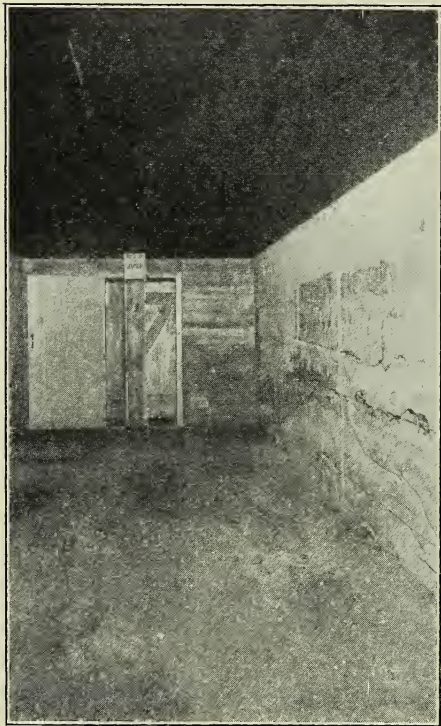
As first planned, I had figured on a wooden roof covered with three inches of concrete and also with earth, but the Root Company engineer advised against this. His claim was that the 6x6 timbers which I proposed using for rafters, with one-inch boards for roofboards, would last only a short time; and, as the three inches of concrete would not be strong enough to bear

the weight of the earth above it, they would collapse sooner or later. I, therefore, changed my plans to an entire concrete cellar.

Our soil is gravelly and stony—mostly stony, I thought, from the size of the pile of stone that was taken out. After going down about five feet we encountered a vein of black building sand about two feet thru and extending the whole length of the cellar, and I was thus saved the buying and hauling of sand. I made a mistake at the start, in that I did not run my cellar far enough into the sidehill. After the excavating was done the cellar was ten feet deep at one end and three feet at the other. I figured that I would have surplus earth

enough to fill this end and bring it up level with the back end; but I did not, as it took an immense amount of earth to fill in front of the front wall of the cellar. We did manage to make it go by building a wall all along the front, as you will see by the picture, to hold the earth back.

The cellar is forty feet long, nine feet wide and seven feet high, inside measurements. The walls are eight inches thick, and the flat concrete roof is eight inches thick, reinforced the short way with miniature railroad rails placed 20 inches apart and $\frac{3}{8}$ square rods one foot apart running lengthwise. Between the rails we placed fence wire, iron rods, and any other material



Interior view of underground concrete beehive-cellar. Note the ventilating-tube extending downward from the ceiling nearly to the floor of the cellar.

which we had lying around. The side walls were built first. After digging a trench about 15 inches wide and two feet deep and filling it with cobbles, we poured on a mixture of very soft cement and sand, which when hard made a good, firm foundation. Our walls were made from a one-to-three mixture of cement and sand, with stone from an old stone wall as a filler. The stone was donated by a neighbor for cleanup up the wall.

How Roof Was Constructed.

After 48 hours the side walls were hard enough to allow the removal of the forms,

and we erected our form for the roof. This form was constructed with the oak timbers and boards, which I originally planned to use for the roof. We placed three 6x6 timbers, cut to length, on end on a plank or timber so that they would not settle in the ground, one timber against each side wall and one in the middle. When we ran short of timbers we used 2x4's, which answered just as well. On top of these timbers we placed another timber running parallel with the under plank. After erecting these uprights about four feet apart the whole length of the cellar, we covered them with one-inch oak boards, after staying each upright to the other. We then covered the boards with one-ply tar paper, to keep the cement and water from running thru the cracks, as the boards were not matched or planed. This form was built one inch below the top of the side walls, so as to allow the railroad rails to rest on the top of the side walls and yet have concrete underneath them. In taking down the form the tar paper stuck to the concrete and still remains, as you will notice by the picture of the inside of the cellar.

After completely covering the form with concrete one inch thick and flush with the top of side walls with a mixture of one-to-three (no stone), we placed our rails crosswise and filled in between them with a mixture, using one inch crushed stone, the mixture being one part cement to three of sand and five of stone. It took four men one whole day to mix and place four inches over the entire surface. If I had realized what a mammoth job I was up against, I should by all means have had a concrete mixer. The second day we finished the roof, sloping it slightly from the center, so as to shed any water that might soak thru the ground. After bringing the concrete to the top of the rails we laid our $\frac{3}{8}$ bars across the rails one foot apart and continued with the roof until finished. This was allowed to harden over night and then covered with one inch of building sand and sprinkled three times a day to keep the sun from drying it out too fast.

At the front of the cellar we have a four-foot vestibule with a door at each end. After letting the concrete cure for two months we took down the roof form, and with a team and scraper hauled the dirt back on the roof, and the cellar was ready for occupancy.

Ventilating System.

Our ventilation system is composed of a six-inch glazed-tile fresh-air intake, running 75 feet underground from a terrace on the street and coming in at the north end of the cellar. I inserted a six-inch elbow and two lengths of stovepipe with a damper in one length in this tile, running it to near the floor. This damper is now shut, and I get plenty of fresh air.

Near each end of the cellar in the ceiling I have a ten-inch tile running up thru

the ground and covered with a concrete cap, leaving a one-inch space between the top of the tile and the cap. In the cellar I have a wooden ventilator connecting with the tile at the ceiling and reaching to within about six inches of the floor ventilators. These are also equipped with a slide to regulate the size of the opening. So far I have found it necessary to leave them both wide open.

This cellar has proved a grand success. I wintered 300 colonies in it the first winter with practically no loss, the five or six colonies that were dead in the spring being either queenless or short of stores. I was able to hold the temperature at 48 degrees with not over a half of a degree variation all winter.



Entrance to underground bee-cellar built in hillside. It would have been better to have located the cellar farther back in the hill, thus affording greater protection from outside changes in temperature.

Last fall I put my bees in the cellar on Nov. 13, in the finest condition, I think, that they ever went into winter quarters except that they had no flight. The next morning the thermometer stood at 48 degrees again,

On Dec. 28 I inspected the cellar again, and found the thermometer still at 48 and the bees quiet.

During the first winter some moisture condensed on the ceiling, but apparently it did no harm. I think it was partially due to the concrete not being thoroly dried out; so far this winter there is no moisture except near the door and around the ceiling ventilators.

I did not cement the cellar floor when I built the cellar, as I did not know how much

water might come in; so I let the floor remain at it was, after leveling it and tamping it down hard with a tamper. I think now that I would rather have the dirt floor than cement, the only objection being that it is a trifle harder to clean up the dead bees in the spring.

The hives are placed in two rows, one on each side of the cellar, on 2x4's laid on edge on top of short pieces of 2x4's on edge, making them eight inches from the floor. I prefer to face them to the wall, leaving a six-inch space between the hive and the wall. They are tiered five high, one on top of the other, no tier touching the one next to it. I laid an inch strip on top of one of the 2x4's so as to tip the hives toward the walls a little, so that moisture can run out at the entrance and also that the dead bees may work out to some extent.

The wheelbarrow shown in front of the cellar is one of my own design and is a labor-saver. It carries three colonies very nicely, with practically no weight on the arms. While loading and unloading, the hives slant some, but are kept from sliding off by cleats; when the handles are raised the hives are perfectly level. Alighting-boards are all removed out in the yard, and very few bees attempt to leave the hive while in transit to the cellar.

In taking the bees from the cellar in the spring I like to heft each hive as it goes out. I arrange them in three sections in the yard, heavy, medium, and light; then I do not have to pay any attention to any part of the yard, except the light section, until the weather is suitable. This method saves much time in going over the whole yard and hefting each hive several times till the honey flow starts.

Clarksville, N. Y.

[The most important thing in the construction of a bee-cellar is to have it so deep in the earth or so well protected that the changes in the outside temperature do not affect the temperature within. The trouble with the ordinary cellar under the house is that it requires almost constant attention to regulate the temperature, while a cellar that is built entirely underground, as described above, should need but little, if any, attention as to temperature during the winter. Where there is a building over the cellar, similar results can be obtained by the construction which is used so successfully by David Running of Filion, Mich. In this case the cellar is dug deeper in the earth, and the ceiling is placed two or three feet below the surface of the ground outside, thus leaving a space between the ceiling of the cellar and the floor of the building above, which is partly filled with sawdust or planer shavings.—Editor.]



SELLING HONEY DIRECT

Why Price Should be Less Than Retail Price at Grocery

A beekeeper, who has sold honey direct to the consumer all his beekeeping life, great quantities of it, was asked the secret of his success.

"Pricing it right," he declared.

I was inclined to agree with him, as I thought of an incident under my observation but a short time before. A town family had a slight acquaintance with a farm family who kept 30 stands or so of bees. Mrs. Jones, the farm wife, telephoned one afternoon in early summer to Mrs. Esson, the town wife, that she had some nice strained honey for sale. "The price is 20 cents a pound," she explained, "when the customer furnishes the jar. That is for small amounts. I have half of a big five-gallon can, tho—about 30 pounds—which I would let you have for 18 cents a pound."

The town woman ordered 10 pounds, paid \$2 for it, liked the honey, and thought buying direct of the producer was fine. The next day, in the corner grocery at which she traded, she noticed some strained honey, and asked the price.

"The very best grade," answered the clerk, "is 20 cents a pound, when the customer furnishes the jar."

It was a red-hot Mrs. Esson who reported the information at the supper table that night. "She didn't say so," Mrs. Esson declared, "but, of course, I supposed I was getting the honey cheaper than the stores were selling it. To charge us the full store price isn't fair. It's grabbing for the Jones family all that is saved when the two families of us cut out a middleman. The next time we buy honey, it'll be of a store, which charges us a fair price, and gives us monthly credit and delivery service. We won't bother with buying of producers who want to grab it all."

Unreasonable? The present writer isn't going to comment on that. I am not going to say either, whether Mrs. Esson's remarks were just or otherwise, when another local store, a day or two later, advertised honey by the gallon for \$1.65. Certainly, a producer's 18 cents a pound looked big beside a store's 14 cents.

The point I wish to bring out, tho, and it has been confirmed by repeated happenings which have come to my notice, is that the beekeeper who wishes to build up any extensive year-after-year business with consumers, simply must see that his prices give the purchaser a saving over the local stores. I am not going to discuss here whether Mrs. Jones' 20 cents to Mrs. Esson was fair or

was not—price is something it is possible to have some mighty warm squabbles over. What I do wish to bring out is that the only kind of price which is practical is the price which will build business and make profits for the producer; and that sort of price, in the case of honey, is a price somewhat lower than the retail stores charge.

The same condition, of course, applies to other farm products occasionally sold direct. In all of these, a lot of harm has been done by published matter carrying the impression that consumers are most interested in quality, and that, if the quality is right, the consumer won't balk at paying the full retail price. Such theorizing sounds all right, but my investigations indicate that it simply won't work, as the basis of a direct-to-the-consumer trade.

The gentleman who calls around at the farm, produces his bucket from the car, and buys a gallon of honey direct, may rave about the quality of honey bought from the beekeeper, and how it is like no other honey in the world. He may do this. Consumers often do. But in his heart of hearts, what matters most with this gentleman? Price. Yes, sir, price. The real cause of his satisfaction in buying direct is the cash-saving; and when that cash-saving is eliminated, the buying-direct enterprise ceases to interest him. He turns instead a crank on the subject of the unreasonableness of the pricing methods of farmers. "Help the hogs, when they want to gobble all the saving? I should say not." Like the farmer, the consumer is human.

This article is intended to be constructive. I believe a majority of beekeepers who ever have the chance to sell honey direct underestimate the necessity of correct pricing. Perhaps they feel that the buyer should pay the store price. If you can get the store price, get it, by all means. I mean, get it as the basis of a large volume of permanent trade. I don't believe it can be done. The full retail price can be obtained of an unsuspecting consumer once perhaps, but he is going to check up that price in most cases, and the next time you call, he isn't interested.

A cash-saving over the retail store will, however, interest a wide number of people. There are any number of these town families on the lookout for economies. The surprising growth of the chain stores, operated on the principle of "serve yourself, pay cash, carry away," proves this. These stores are patronized by all classes of people, a considerable number of whom could, if they preferred, buy elsewhere on weekly or monthly bill. They trade at the carry-away stores because they wish to save money.

FROM THE FIELD OF EXPERIENCE

At the prices honey is selling for this year, there is opportunity for an enormous trade direct with the consumer. It has been a great many years in most localities since the market price of honey was so low as now. This in itself is a desire-to-purchase arouser. The producer who can mention, further, that his price is a saving over local stores adds much to the appeal.

Permanent trade, the kind of patronage that comes to a beekeeper year after year with little selling effort, is what the producer most wants. A customer has to be secured in the first place, however, and energetic effort is needed.

By using the telephone, soliciting friends and acquaintances first, then the friends and acquaintances of the latter, it is possible to sell considerable quantities of honey. Postcards, with a soliciting message printed or process-typewritten, sent to a list of auto owners in a near-by city, are effective in bringing auto traffic to the farm. These should quote price, and give directions for reaching the farm. Where a carline passes the farm, newspaper advertising, small cards run the latter part of the week or Sunday, reach the general public. Some beekeepers use the want-ad column effectively in this manner.

When honey is peddled out, the best selling method I have ever seen, is selling from a wagon, on pay-day night, to industrial workers. The privilege of stationing one's wagon in a strategic spot is worth something, and some tact may be required to obtain it from the management of the manufacturing concern. If the management is progressive, however, this can be done by agreeing to sell at a certain percentage below store prices, so that the concession in reality is a clear benefit to the employees. Where the management and honey producer work together in this manner, the former will usually put a notice on its bulletin boards saying it has arranged with so-and-so to furnish employees with honey at the low price. Where the industry is large, the department to go to is the industrial-relations department, or the official who handles the subject of industrial relations.

With most producers, however, the labor required to sell a customer the first time will not make the whole transaction a bonanza, tho the price secured will be several cents better than the price buyers are paying at the stores. It is, however, a way of working harder and consequently getting more; and each year, as the same market is sold to, and as the right pricing policy is followed, the sale of the apiary output to consumer-buyers will involve less and less effort. It is the permanent customer, sold to with little effort, who makes selling honey direct attractive.

Boulder, Col. John T. Bartlett.

NEW WAY OF WINTERING

Uniting Several Colonies to Conserve Heat; Wintering without Combs

The great labor, trouble, and expense of preparing bees for winter, the amount of food used, and the uncertainties of the results long caused me to cast about for some other and perhaps better plan.

I sat down and tried to analyze the present methods. The widely varying results reported from the different methods were disconcerting and no good explanations were offered. The heavy packing plan seemed the most uniform, but the cost of cases and labor was appalling. The results were said to be the best yet. This was excellent if I could raise the money and find the labor, and as I failed to see either right at hand I pondered further.

Perhaps, after all, this system was the best for me; by keeping fewer colonies but bigger ones and running them more intensively, I could make as much and with greater certainty, so cases and thick packing were for the time held to be essential.

Cellars? The results were too irregular, the labor item was greater than cases, and all were dependent on having a suitable cellar, which I did not have.

Colony condition? The sages said big colonies of young bees with young queens. There was some cost for labor and food, but seemingly necessary with any method of successful wintering; so it only remained to find out how big a "big" colony is. Probably one that would fill a box, and it was so noted, but with a memo for later revision.

Food? what and how much? Some said two pounds would winter a good colony, but that it would take from 20 to 60 pounds to carry them thru the spring breeding season to the new crop. Plenty of margin for guessing there; so that was allowed to rest for further consideration.

The costs look out of all proportion to the possible, tho problematical, returns in quantity and quality of crop, without thinking of price which might, but probably would not, stay at war-time levels.

Something had to be done, but what? Get out of beekeeping and do real work, or do with the bees what the other fellows had never done? The latter appealed to me. If you don't have confidence in yourself who else will?

The answer was long in coming and looked as if it never would come; but patience and thinking, even if you are only dreaming, do bring results. One day I saw a seemingly foolish idea of wintering bees without combs, and that recalled a scheme of Dr. Phillips to winter combs without bees, buy-

FROM THE FIELD OF EXPERIENCE

ing bees and queens in the spring from the South to put on to the combs and honey carefully saved for the purpose. Mixed with those ideas was another man's scheme of wintering a few whopping big colonies and dividing them in the spring, giving each part a young queen from the South. The wheels began to turn. Bee culture had some possibilities left in it after all. I was soon as busy as a puppy with flees.

About how many "good" colonies could be combined and wintered successfully? Why not all the bees of a yard put into a specially packed room. Fine idea until I recalled that Dr. Phillips claimed the necessity of 57 varieties of heat, I mean of degrees of heat. Such a mass of bees would probably start spontaneous combustion; so I let my visions pass and got down to rational things. I finally settled on combining the bees of five colonies, basing it upon the idea that Dr. Phillips put four colonies with combs, etc., in one case, so that five without combs or brood ought to be about right.

How much food would bees so bunched need and in what form should it be? I guessed to no purpose concerning the quantity. As to form I considered liquid, either honey or syrup, or soft or hard candy, or candied honey in a division-board feeder. Candy looked the most feasible, the cheapest anyway, and all right till brood-rearing began, and then the bees would be back on their combs with honey and pollen. As hard candy was easier to make and just as good as soft, so far as I could determine from many trials of each, I decided on slabs of hard candy, and on using a ten-pound slab with glass over it and under the top packing; then I could see how they were fixed at any time and give more when needed.

The next query was a box for the bees, and what was better than a regulation body. Jumbo size? A sensible-sized case would hold it; not that the genial doctor's is other than good in its way, but it is too much in the way physically and financially.

The rest was easy—four colonies de-queened and kept so till their brood had emerged, and the queen of the fifth kept caged, and the bees prevented from raising another for the same period, when all were combined, shaken into the empty body, queen freed, candy put on top, all packed in the winter case, and what more could be asked? Well, a whole lot! I am an insatiable fellow, as you will soon see.

Bees under the described conditions will build comb, and a free queen will lay in it long before I desire any brood-rearing. If you will recall it, Dr. Phillips often gets too much brood or too many bees too early for the honey flows, which condition, tho not so bad as too late, yet is too costly, and I

want to keep bees better than that and get the young bees at the psychological time.

Right here some of the rest of you may be able to help me. Can I cage the queen for the whole winter in such a colony and how? She must be able to move with the bees if they chance to cluster, and she should have access to food and not be dependent on the bees.

And again, tell me, can I safely cage several queens in one colony, each queen, of course, in her own cage, so as to have them on hand for spring when I want to divide the big colony? As I view it, the bees should have access to the queens thru excluder zinc; if so, then the queens will be dependent on the bees for food, for the bees would consume any food placed in the queen cages.

Also, will it be wise to put one or more sets of foundation in the wintering hive for the bees to work on, and will they draw it or gnaw it? It makes some difference which. Or will it be best to let them build comb in the free space of the winter body and later cut it out for wax?

Now, if some of you will just solve these latter parts of the problem, I will be greatly obliged, and—well, I'll make no rash promises. But I do feel the need of help just now, tho I may work it out myself ere long.

Providence, R. I.

A. C. Miller

VERONICA OR SPEEDWELL

Is this Plant of Value as a Honey Plant where it Grows in Abundance?

I wonder if any note has ever been taken of veronica as an important plant for bees. Nectar has not been very abundant in this region. All early blossoms were destroyed. There was nothing the bees could gather from March 27 to May 10. White clover did not produce much nectar this spring. Sweet clover was good but not very abundant. Early in July I noticed my bees making a straight bee line in a southeasterly direction and this was kept up for days. I concluded the bees were working on a field of alfalfa or sweet clover. However, after several weeks, I concluded to go in search of their pasture. I found it about a mile distant—some four or five acres of old pasture land, purple with blooming veronica, or speedwell. This is a long spike which begins to bloom near the stem in a circle of flowers that gradually work outward toward the tips. The spike continues to grow in length also. Some spikes are more than one foot in length. They have been furnishing nectar for one month. I would like to know if any one has ever reported as to the value of this as a nectar plant or as regarding the quality of the honey.

Hugh Miller.

Kansas City, Mo.

THE suggestion of Editor Demuth, page 510, August Gleanings, as to removing comb-honey supers, as soon as the early flow is over, is timely.

I have spent the best part of the last two weeks cleaning sections, and I realize how much extra work half-filled sections or empty ones left too long on the hive make, as well as how many are ruined. By the way, I never realized before what a difference there is in different colonies in the amount of propolis they store or daub over the nice sections. I presume there is more difference in a poor season than in a good one. If the supers have on them the number of the hive from which they were taken, we may spot every colony where the bees have wasted their time gathering propolis when they might have been storing honey. Then during August we may remove their queens and replace with new young ones.

* * *

I have so far cleaned about 11,000 sections, and am surprised to see how much faster I can work than I used to. If you have a stiff short-bladed knife, an old file to keep the knife sharp, and a little oil so the propolis will not stick, you can make the work move off even if the weather is hot. Of course, the knife should be as hard as possible without being brittle.

* * *

I was especially interested in the article by A. I. Root on blueberries and huckleberries. The beauty of it is that he has not overdrawn the work that is being done along this line. I was shown photographs of some of these immense blueberries, life size, at the Department of Agriculture a year ago, and I can testify that they were whoppers.

* * *

Can it be true, as stated on page 495, that 75 per cent of city people think that honey in groceries is not real honey? If it is true, where did they get such ideas? If by reading stray paragraphs in newspapers, then let us contradict it thru the press. Unquestionably American beekeepers have a large task ahead of them, educating the great mass of our people to the purity and value of our honey.

* * *

It is doubtless true, as A. N. Clark suggests on page 495, that the granulation of honey is sometimes hastened by some in cells left over from the previous season, but we do not find much trouble from this source. If such sections are put on before a rush of honey, the cells are usually cleaned up before new honey is stored in them. However, I believe it is better to have sections, from which honey is extract-



SIFTINGS

J. E. Crane

ed, cleaned up in the fall if it is possible. Some of the finest sections we have secured this year have been in these drawn combs. We have set some of them

aside for exhibition at our county fair.

* * *

That is a right good article by E. B. Tyrrell, page 484, on "State Fair Exhibits." It reminds me of an old lady who used to write before certain Bible promises "T. and P.," which she said meant "tried and proved." Now, this plan of the Michigan beekeepers has been tried and proved and found to be of increasing value. It shows also that the welfare of the whole is of much greater value than the success of the few. I note, too, that they are pushing the 5 and 10 pound pail. Their heads are level.

* * *

That is a delightful story written by Grace Allen on pages 500 and 501, concerning Francois Huber. How little we of today realize the hard, laborious tasks that patient studious men worked out for us during the last 200 years! Facts about bees, that seem as simple to us as our ABC's, were worked out with a great amount of labor. The same is true of chemistry and physics and other natural sciences. Rather than boast of our own success, let us remember our indebtedness to those who have gone before and done so much for us.

* * *

It does one's soul good to read the report of the unusual flow of honey in Ontario, as narrated by J. L. Byer, on page 502, while we are not getting half a crop. Well, next year it may be our turn, and those Canadians may be mourning over the failure of a crop. And yet our friend Byer does not seem to be satisfied. I am reminded of a man who lived in Philadelphia at the close of the war of 1812. He owned a boat in New York harbor. Hearing boats were in great demand, he sent his son to New York to sell the boat, setting the price at a large sum. The son sold the boat for twice what his father asked. On reporting the sale to his father the son found it hard to make him believe that so large a price had been obtained, but after counting the the money the old man was convinced. Then he broke out, "I say, John, couldn't you have got a little more?" Well, fun aside, it pays in beekeeping to be prepared for the extra flows to make up for the lean years.

* * *

A. C. Gilbert, East Avon, N. Y., says to wait two days after removing the old queen before introducing a ripe queen-cell. Why wait two days? We have found one day, as a rule, quite sufficient.

ON the list of flaming names that thrill the beekeepers of the world, Francois Huber (1750-1831), the blind Swiss naturalist mentioned last month, stands first. Johann Dzierzon (1811-1906), the German preacher who gave to the world the parthenogenesis of drones, is another.

Recent Scientists.

Many other investigators have discovered facts about the bees that most practical honey producers, or enthusiastic backlot beekeepers, are not equipped to discover for themselves. They have not always agreed, however. In 1883, for instance, came Schiemenz, claiming after careful research that larval food is produced by certain glands (lateral pharyngeal). Three years later came his countryman, Schonfeld, claiming that the valve at the mouth of the stomach passes forward to the oesophagus to let the contents of the stomach be ejected thru it, to be fed to the larvae. In the same year, the respected English Cheshire, in his "Bees and Beekeeping," upheld Schiemenz. Then in 1904 the English Cowan and our own A. J. Cook entered the lists, each upholding Schonfeld. But in 1910, out from the Bureau of Entomology at Washington, spoke R. L. Snodgrass, in "The Anatomy of the Honeybee," saying the proventriculus cannot thus pass forward without being torn. All that the beekeeper knows is that the larvae are fed. As to the composition of this food, we have so far only von Planta's analysis of 1888; some day some one else will undertake this, with newer methods of research.

D. B. Casteel of the Bureau of Entomology has contributed studies in "Manipulation of Wax Scales" and "Behavior of the Honeybee in Pollen Collecting."

The Bureau of Entomology.

In fact, the Bureau of Entomology stands like a strong connecting link between these strictly scientific studies and the practical work of the honey producer, having issued many other bulletins, covering nearly every phase of apiculture—the winter cluster, wintering in cellars and in packing cases, foul brood, comb honey, transferring, and all such practical problems. In connection with this work there instantly flashes to every beekeeper the name of Dr. E. F. Phillips, in charge of these investigations. All reading beekeepers know and respect him. Thru his bulletins he reaches them all. Thru his book, "Beekeeping," he reaches all who are interested in a splendidly organized presentation of the whole subject, at once scholar-

Beekeeping as a Side Line

Grace Allen

ly and practical. And thru conventions and short courses, he has met and personally reached hundreds of particularly fortunate students of bee culture.

Langstroth and Quinby, Twin Giants.

The great twin giants of the nineteenth century in the beekeeping world were L. L. Langstroth and Moses Quinby. Both born in 1810, each one issued a book in 1853—books which have become classics in American beekeeping annals: "The Hive and Honeybee" by Langstroth, and "Mysteries of Beekeeping Explained" by Quinby.

Quinby gave to beekeepers not only his book, with its wealth of observation, practice, and advice, but also that most essential and useful of all apiarian tools, the bellows smoker. Langstroth gave to beekeepers not only his book, with the record of his close accurate observations of the bees, but also the movable-frame hive.

It is hard to put relative values on discoveries and inventions—but certainly there is nothing in all beekeeping progress to be placed above the movable-comb hive. Huber had really made the first; yet, tho it enabled him to make those great discoveries of the inmost secrets of the bees, for the production of honey on a large scale, they were crude to the point of impossibility. Yet in them lay the great principle. Dzierzon, also, had movable combs; yet it remained for this American preacher, L. L. Langstroth, to perfect the idea and embody it into the complete hive of today, with its unlimited power of manipulation and expansion.

How imagination likes to revive those old days! There was Langstroth playing and working with his bees—and studying them—while acting as principal of a ladies' academy in Massachusetts; and there was Quinby playing and working with his bees—and studying them—while doing cabinet work in an old mill in New York State.

While living in Philadelphia, Langstroth had read Huber. Now Langstroth was a man whose reading of Huber meant something. He was a thinker. Probably on many a rainy day he sat looking out thru a window on the quaint quiet Philadelphia of those days, building in his mind a hive like Huber's, only more so. How he must have studied his own primitive hives—"Now if I can just put each of these combs in a frame so it can be picked up and examined—and leave just the right space between for the bees."

After going to the ladies' academy in Massachusetts, he found, up among the

old hills, another young man, W. W. Cary, who had bees and also, happily, a workshop. In this shop, then, models were made of the new hive that was dreaming itself into Langstroth's brain. Till at last it was perfected. His book was published and his hive perfected when he was 43 years old; and he had done a great thing for the beekeepers of the world. Really a greater thing, probably, than most of them realize or appreciate. Can they not open their hives now and remove any comb from any part without cutting or injuring any other comb? With combs built in frames ingeniously supported, with all inside spaces figured to a nicety, Langstroth's hive has made possible the great strides in commercial beekeeping.

Quinby earned his first money when he was 18 by working in a sawmill, and with his first money he bought his first bees. From the sawmill he went on into cabinet work, making durable dignified furniture, and from his first colony of bees he went on thru 25 years of study and application, successful in spite of things, or the lack of them, until at 43 he published his book. During all those years his vision had been that of making beekeeping a worth-while industry, something men could understand and make profitable and live by. How steadily he overcame difficulties and took new steps! Instead of sulphuring his bees to take their honey, he bored holes in the tops of the hives and set boxes over them. And the bees filled them. Behold, a super. Foul brood came his way. With black bees in box hives. There were no government bulletins, either. Yet he met it, studied it, and evolved principles of treatment and control that still hold.

After publishing his book, he made beekeeping his sole means of support. Still with black bees in box hives—more than half a century ago. But soon he heard of Langstroth and his wonderful new hive. Thoroughly he studied it, saw its big underlying principle and adopted it, or rather adapted it to his own ideas. He preferred and used a deeper frame. He was the first big successful honey producer, taking off tons of honey year after year. Few people realize that before 1875, the year of his death, any man had ever produced so much honey. Many people even now gasp at the mention of one ton of honey. "Why, I didn't know there was that much honey in the world," they say. Yet Moses Quinby shipped as high as 15 tons a year to New York.

He was an intensely practical man, with a big vision—a combination that always makes for success. And he was generous of his wealth of experience and learning, always teaching, telling, explaining, and imparting his own enthusiasm. Happy indeed those who knew him in his own home-loving atmosphere of bees and vineyard-terraced hillsides and fluteplaying and

quiet happy life. Both Langstroth and Quinby were men of such a type that American beekeepers may well be proud of them as men. Langstroth was a preacher and Quinby was a Quaker—and the father of a preacher.

After their books were issued, in 1853, the whole beekeeping world, thrilled by the possibilities of the Langstroth hive, made one advance after another. Foundation, extractor, Italian bees—one by one these came, too. Must not these two great beekeepers have felt, in their later years, like sturdy pioneers who finally see modern industry and convenience make perfect the land where they, unaided, had hewn down forests and dug deep wells?

Doolittle and Miller.

Other loved and successful beekeeper-teachers followed. Two great recent contemporaries were G. M. Doolittle and Dr. C. C. Miller. Doolittle was the great authority on queen-rearing and bee-behavior, always an accurate observer whose statements were thoroly reliable. Dr. Miller was a great comb-honey specialist. It still seems strange, even after the passing of a year, to say *was* of Dr. Miller. Of all who have kept bees, he was somehow most particularly beloved. Most skillful and successful himself, he solved many apiarian problems for others and gave his methods and opinions freely—and most modestly—thru the bee journals. He gave of himself, too, so all who read caught glimpses of his rare, magnetic, lovable personality. Like Quinby before them, both Doolittle and Dr. Miller made their own bees most profitable.

Leaders of Today.

A. I. Root is so intimately known to readers of *Gleanings* that to mention him is like mentioning a friend. His vision of the commercial possibilities of standardized hives built the great A. I. Root Company, headquarters for everything in beedom, bees and queens, hives, implements and foundation, books, honey itself—and *Gleanings* itself, with E. R. Root as editor. He has identified the name of Root with all things apicultural. So, too, the name of Dadant, even unto the third generation, means bees, and brings to the minds of beekeepers of today the thought of big hives and foundation and the American Bee Journal—and C. P. Dadant, its editor.

Nor can this list, incomplete tho it necessarily is, reach any logical conclusion whatever without reference to Geo. S. Demuth. Mr. Demuth is another connecting link between the realm of strictly scientific investigation and profitable honey production. Associated for years with Dr. Phillips in the Bureau of Entomology, he has assisted in countless technical experiments. And he has also made a real financial success of his own bees. He is an authority on the production of comb honey. And, happily for its readers, he is one of the editors of *Gleanings*.



FROM NORTH, EAST, WEST AND SOUTH



In Southern California.—As the seasons advance, the southern California beekeepers begin to realize fully just how short the honey crop actually is. Only in very rare instances has a satisfactory amount of honey been gathered.

Occasionally a beekeeper is found who reports as much as 60 pounds per colony. This is where apiaries were left last fall with a good supply of stores and plenty of young bees, and were in very favored locations in the spring. Many colonies have not only gathered no surplus honey, but also have not sufficient stores for winter. Disease is hard to control under these conditions and some loss occurs from this cause. Most beekeepers have reduced their employed help to the minimum and are curtailing expenses all they can. With all of this, the balance will be on the wrong side of the ledger for 1921.

This is discouraging, but one has only to look around at other lines of production to see in many cases a much worse condition. Many who secured but little for their deciduous fruit last year, see little to encourage them this year. Following the war, there will be a few years of readjustment of conditions thru which all of us will have to go. Of course, a failure or short crop, such as we have this year, combined with the low prices, adds to our problems. But one or two good seasons later on will accomplish wonders for us.

Very little honey is being moved and buyers are "as scarce as hen's teeth," as the saying goes. We have heard of one or two feelers to know if the producers would take eight cents for white honey, but the beekeepers think that it is worth more than that. But taking it all in all, the price never worries us half as much as the failure of a crop. A good crop, even if it is necessary to sell it at a low price, leaves the producer in splendid condition to go at it again the next year; while the short crop leaves him discouraged, and his bees are in poor condition for the following year.

Comb honey is almost an unknown quantity among the beekeepers in this part of the country. As to price, 25 to 35 cents is being asked by the retailer. This is mostly for honey produced in the east-central part of California, Utah, and Nevada. Anyone having the equipment would do well to look into this branch of the business for next year.

As we travel over the roads between our home town and the out-apiaries, we meet hundreds, yes, we might say thousands, of automobiles with bedding and camp outfit strapped to the sides. Many of these have license plates reading Oregon, Washington, Arizona, and sometimes eastern States, but

the great majority carry Californians away for their summer outing. It is almost the universal thing to take a trip some time during the year, and the great majority go during the summer months. Some are bound for the mountains, and others are going to the ocean beaches where a dip in the ocean, fishing, or rolling in the sand furnishes a change and recreation. A trip adds little or nothing to one's expenses, compared with the home living expenses, for most of them go equipped to camp wherever night overtakes them. One always comes home refreshed and encouraged and much better satisfied to pitch in and make things go in the business in which he may be engaged.

Corona, Calif.

L. L. Andrews.

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In Texas. Prof. S. W. Bilsing of the A. & M. College of Texas recently published an article in the Ohio Journal of Science, entitled "Quantitative Studies in the Food of Spiders." This may not appear interesting to the beekeeper; but, in the investigation reported, Prof. Bilsing found that honeybees formed a part of the food of almost every species of spider studied and the bulk of the food of several. In Texas we have two species of spiders, one a large black web-building spider, the other a yellow-green flower spider, that lives almost wholly on honeybees. The beekeepers are well acquainted with the black spider as it makes its home on, or around, the hives. The yellow one is a greater pest as it exists in greater numbers; yet it is seldom seen, as it builds no web but hides in flowers. This spider lies in wait and grabs the bee as it alights on the flower. The robber throws its second pair of legs around the bee's neck and sucks the body tissues out thru the mouth parts.

The article on the time of the development of worker bees in the July Gleanings is in line with observations reported here. Here is one case which I have every reason to believe is authentic. In October and November worker bees were still emerging 31 days after the queen had been taken from the hive. In a very exact and prolonged study of the cowpea weevil and of the sweet potato weevil, made by H. J. Reinhard, Entomologist at College Station, Texas, he found that moist cool weather retarded the development of the insect and that hot dry weather shortened the periods. Queen-breeders have often told me that the period of the development of queens is 12 hours less in midsummer than in early spring.

The many friends in Texas and elsewhere will be pleased to note that E. G. LeSturgeon, nationally known among beekeepers, has been elected to the State legislature.

The weather conditions of the past month



FROM NORTH, EAST, WEST AND SOUTH



have been normal for all parts of the State. The heavy honey flow of June has been prolonged, and in many parts of the State the cotton honey flow has set in. The beekeepers are greatly surprised at the amount of the honey crop. In many sections where this spring disappearing disease almost depopulated apiaries, fair yields of honey have been taken. One well-known beekeeper reports that this disease brought down one of his outyards to an average of one frame of brood to the colony in the middle of May, and that he had given up all hope of any honey crop in this yard. He visited it on the 20th of June and found that the colonies had made an average of one super each and were in need of room. The majority of beekeepers report that there is the greatest need for careful attention just at the present time, as nearly every brood-nest is filled with honey and pollen, and almost immediate attention must be given if the colonies are to go into the winter in good condition. The prospect for a cotton flow seems good.

The annual meeting of the State Beekeepers' Association was held at College Station in connection with the Farmers' Short Course, July 26, 27, and 28. This was the 28th annual meeting of the beekeepers' organization and was one of the most interesting that has ever been held. The opening address was made by Dr. L. H. Pammell of Ames, Iowa, who recounted very briefly his experiences in Texas and told the beekeepers of the value of bees in aiding in the production of farm crops. Dr. M. C. Tanquary spoke relative to the Experiment Station and beekeeping and told of the activities of the Station during the past year. State Apiculturist Lloyd Watson briefly reviewed the behavior of bees in swarming and told of original observations made at the State Experimental Apiaries. T. W. Burleson of Waxahachie gave a detailed account of the shipping of bees in combless packages, and a very interesting discussion followed as to the handling of bees by the receiver.

State Apiary Inspector C. S. Rude gave the results of the inspection work in Texas for this year, and it was surprising to note that during the past two years the number of cases of foul brood have decreased immensely under the new policies of the inspection service. E. B. Ault told of the system and care necessary to make a success of handling bees in enormous quantities. Mr. Ault is perhaps the largest beekeeper and bee-shipper in the South. E. W. Atkins of the G. B. Lewis Company spoke on the importance to the beekeeper of using a standard equipment. W. O. Victor of Uvalde gave an outline of his annual activities in the beeyard, and called the attention of the beekeepers to the order in which these operations should be performed to get

the best results at the least expenditure of time. R. R. Reppert, Extension Entomologist, called the attention of the beekeepers to the importance of extension work and asked their aid in the establishment of the office of extension apiculturist. A. H. Alex, queen-breeder of the Experiment Station Queen Yard, gave the results of his year's work in the State Queen Yard and furnished definite instructions for the raising of queens by the small beekeepers. Louis H. Scholl of Texas told of another year's experience in the use of the divisible brood-chamber and stated that he was better pleased with it than ever. H. B. Parks spoke on locality and told of the necessity of the beekeeper's studying his flora and keeping an accurate account of the blooming dates of plants. He also called attention to the fact that the Isle of Wight disease would have been explained years ago, if the beekeepers had studied locality instead of studying symptoms. He also stated that the organism causing the disease was undoubtedly a parasite on some solitary bee and had later become a parasite of the honeybee. The beekeepers were favored again this year by having Hon. W. A. Black of San Antonio present, who spoke to them briefly of their legal relationship to the community and to the State. Seventy dollars for the Miller Memorial Fund was subscribed as the last act of the meeting.

San Antonio, Tex.

H. B. Parks.

* * *

In Ontario.—The season for white honey is practically over in Ontario at this date (Aug. 8), and from reports from different points it can be said that the crop is good—possibly much above the average. Some sections, including the places where over half of our bees happen to be, have had a light crop, running around 50 pounds per colony, but other localities have had exceptionally heavy yields.

While prices are on the down grade, as was to be expected, yet from all over comes the report that the local demand for honey is very heavy. This is partly explained by the short fruit crop; but, no doubt, the common idea that honey is much cheaper this year prompts many to buy who have been purchasing little during years of higher prices.

Contrary to the expectations of most of those much interested in sugar, that commodity, a few days ago, took a rise of over a dollar a hundred at one jump. Whether this is a permanent rise or not is a question, but many, including the writer of these notes, are now wishing they had purchased sugar for winter feeding before the rise.

A lot has been said in Gleanings and other periodicals about sweet clover, both the biennial and the annual varieties. As



FROM NORTH, EAST, WEST AND SOUTH



many know, I have never been a sweet clover booster and, notwithstanding the fact that we have secured a lot of honey from this plant during last year or two, our attitude towards this plant has changed but little. I believe sweet clover has its place as a pasture plant, and particularly on light poor soil it is a great thing for enriching the land. But we live in a locality that has been noted as a grower of pure alsike seed, and from the time the farmers started to grow sweet clover I predicted that the alsike industry would be about ruined. Many who disagreed with me have now changed their minds. This year it was a rare thing to see a field of alsike or red clover that was not badly mixed with sweet clover; and sweet clover, no matter how valuable by itself, will certainly knock out the value of other clovers when mixed with them.

But I started out to tell of my limited experience with the annual and biennial varieties. This past spring I sowed some sweet clover broadcast on a very thin meadow in the first week in April on the bare stubble land, with no work following the seeding. The spring was phenomenal for growth, and in three months this biennial sweet clover had reached an average height of about three feet among the other grasses. It was cut in early July, some stocks by actual measurements showing a growth of 44 inches in the three months. Early in spring some friends in Alabama sent me a package of annual sweet clover seed, asking me to try it out. It was sown in the garden in drills, and yet at three months it was not nearly as high as the biennial variety. The only difference noticed, aside from the growth of the biennial variety, was that the annual "Hubam" was much finer in the stem and was blossoming quite a lot in three months, the biennial then showing no signs of bloom. At this date the annual is about four feet high and a mass of bloom. But I feel sure that, if the biennial had not been cut, it would be much higher than the annual is at present, as the former started a second growth after being cut for hay and is now a foot high. This is an exceptional year for growth, and another season might tell a different story.

Another matter in connection with sweet clover is that the honey is not as good as that from alsike. Some may dispute this, but 75 per cent of the users will stay with the alsike or white clover honey and tire of the sweet clover. The honey from sweet clover has a peculiar flavor, which many liken to cinnamon, and while most people like it at first taste, they soon get tired of it. Pure sweet clover is a fine bottling honey so far as color goes, and for that reason I think that it will sell right along, color

having a great deal to do with the selling of honey with a great many customers.

At this date we are surrounded with the greatest acreage of buckwheat that we have ever had in the home district, and yet scarcely any honey is coming in. Following much wet weather in July, we now have dry weather and cool nights, accompanied by cool days as well. Buckwheat requires heat and moisture to yield well, and unless the weather soon changes the crop will be light in this locality. Considerable sweet clover is still coming in here, but enough buckwheat is also coming in to make the grade go as "buckwheat," even if it is 75 per cent or more sweet clover.

Colonies should go into winter quarters in good condition so far as young bees are concerned, as there has been a continual light flow in nearly all localities and queens are laying right along. There is more honey than usual in the brood-nests, so feeding will likely be a lighter job than is usually the case.

J. L. Byer.

Markham, Ont.

* * *

In Michigan.—The local price of honey seems to be whatever the buyer and seller can agree upon. The State Fair management recently asked for prices on 10,000 pounds of extracted honey. In the replies prices on extracted honey were quoted all the way from 12 cents to 25 cents per pound. This shows the diversity of opinion as to what the price is to be this year.

Prospects for a full crop seem to be uniformly good thruout the State. Recent rains have helped the goldenrod and buckwheat greatly. Goldenrod is now (Aug. 6) yielding in the northern counties. The flow is about two weeks earlier than normal.

The summer convention of the State Beekeepers' Association was held at Alpena on August 3 and 4. Beekeepers were present from all parts of the State. The convention indorsed the proposed tariff of 2½ cents per pound, as written in the Fordney bill. All members of the association and others were urged to write to their congressman and senators, asking them to support the beekeepers in their fight for a higher duty.

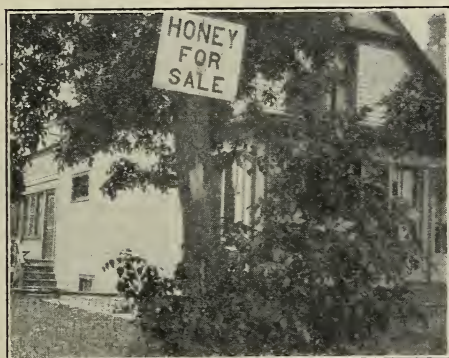
There will be three beekeeping exhibits at the State Fair at Detroit on September 2-11. The extension department, under the management of Mr. Ewell, will be in the bee and honey building. The Agricultural College will have an exhibit in the building devoted to college exhibits. Apiary inspection will have an exhibit in the department of agriculture exhibit. Surely, one of these exhibits should reach most of the Fair attendants.

B. F. Kindig.

East Lansing, Mich.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Should Be Honey Avenue. Elston avenue, Chicago, may some day be called by a much sweeter-sounding name. This is imminent because of the honey that is being raised along both sides of this great public highway, which quite recently has been improved and is attracting heavy motor travel. Cook county beekeepers long since found the advantage of selling the products of their apiaries direct to the consumer, and they are doing it today



more than ever before. This road and its tributaries invade the fifteen-thousand-acre forest preserve of Cook county. There is a wonderful variety of bloom in and out of the forest, now preserved for all time for the people. When the different tracts of land were bought to add to the preserve, many beekeeping plants were found in hiding, as it were. These are operated by private hands. Some of them are close to fine old orchards. The bees seem to have no end of fine prospects. Automobile parties stop at such apiaries and stock up their sweet supply, which turns out to be a good thing for seller and buyer. J. L. Graff.

Ravenswood, Chicago, Ill.

when the occasion requires except in the case of old bees when they need a cleansing flight.

Then what does this washboard action of bees really signify? Simply that varnishing is being done, cracks filled, and things made slick and clean. I agree with Mr. Latham that this action is more prevalent after the honey flow. I also agree with him as to the age of the bees in question, namely, those of the wax-working age. That the wax-workers are also the varnishers is a recognized fact. We find much more varnish or propolis on our sections of honey at the close of the honey flow than at a time when nectar is flowing abundantly, because at that time the wax scales are plentiful, and the builders need not resort to other substances to finish their work. At this time when comb-building should cease and varnishing begin, the bees seem to blend the two and make yellow bitter combs.

I call this peculiar washboard action a necessity, since it is their way of putting the hive into a sanitary condition, and of preparing for winter by sealing cracks and covering objectionable matter. I once laid a new piece of section near the entrance of a beehive, and before night it was covered with a thin coat of the so-called varnish.

C. F. Wieneke.

Fairfax, Iowa.

Stimulating Greater Use of Honey We increase the consumption of honey by means of printed circulars which describe the different kinds of honey, its consistency, its use as a food and medicine, and superiority over other sweets. These circulars are given out to all customers. They are also given to merchants to distribute to all purchasers. The result of this is that, during the next season, the demand for honey is usually about three times as great. This should speak for itself.

Roxbury, N. Y.

M. E. Ballard.

The Washboard Action of Bees I have a little comment to make on the article by Allen Latham (page 152, March, 1921, Gleanings) entitled "Washboard Actions of Bees." I do not believe that he is right in his theory that they are simply working off excess energy. After giving this peculiar action a careful study, I have come to the conclusion that the bees are simply performing necessary work of which I will speak later. As far as comparing the movements of the bees to the activity of a wild caged animal, I think he is surely mistaken. We have long recognized the fact that bees relax into semi-inactivity

Color of Paint for Hives. I like red paint for painting hive bottoms, as it is cheaper and does not show the dirt so much as white. It is also fine for the inside of the cover. If I were using all tight-bottom hives I would paint all the lower body and the brood-chamber red, and keep the supers and covers white. Bees will winter 20 per cent better and average one frame of brood more in the spring in red hives than in white hives, but the red hives are hotter in summer. Chas. S. Kinzie.

Arlington, Calif.

QUESTION.
—What size would you advise me to build a cellar to hold 125 colonies of bees in Jumbo hives?

A. K. Karsburg.
Minnesota.

Answer.—In computing the size of the cellar to accommodate a given number of colonies a good rule is to allow two square feet of floor space for each colony. According to this rule a cellar that is to contain 125 colonies should have about 250 square feet of floor space, or, in other words, should be about 10 x 25 or 12 x 20 feet, inside measurement. Of course, a larger number of colonies can be put into a cellar of this size. Some beekeepers winter successfully by allowing but one and one-half square feet of floor space for each colony, or even less, but it is better to build the cellar too large instead of too small.

TWO COLONIES IN EACH HIVE FOR CELLAR.

Question.—My bee-yard has increased to 78 colonies, too many to go into my small cellar. Would it be well to put two colonies in each modified Dandant hive with a thin partition between, so that I would need only the room of 35 hives in the cellar?

Ohio.

C. J. Appeldoorn.

Answer.—Yes, you can do this if your cellar does not get too warm. The bees will probably winter better than where there is but a single colony in each large hive if the temperature of your cellar is inclined to run too low, as most cellars do during severe winters. The greatest objection to this plan is the labor and the disturbance involved in transferring the bees to the double hives in the fall, and back into single hives again in the spring.

CRACKING NOISE IN SUPERS.

Question.—What is the cracking noise that one hears in a super when the cover is removed?

Michigan.

Norman Shaw.

Answer.—You probably heard the bees gnawing the edges of the wood of the new sections or separators if in comb-honey supers. The same kind of noise can be heard when frames of foundation are given in extracting-supers.

PREVENTING GRANULATION IN BOTTLED HONEY.

Question.—If honey is slightly heated immediately after being extracted, then run into heated glass jars and sealed, is it likely to granulate? Could the jars be filled as the honey is extracted, then later put into warm water for a certain time before sealing tight to prevent granulation?

New York.

Raymond Jenkins.

Answer.—Either plan will retard granulation, but the honey should be heated to about 150 degrees F. (never higher than 160 degrees F.), then sealed while hot to prevent granulation long enough for the requirements of the ordinary retail trade at the grocery. Heating the honey in a large tank before bottling is the plan usually used when a large quantity of honey is to be bottled, and heating it after it is bottled

GLEANED BY ASKING

Geo. S. Demuth

by submerging the bottles in hot water is the plan usually used when only a small lot is to be bottled. The latter plan is useful also when

reliquefying

honey that has granulated while standing on the grocers' shelves. When using this plan the bottles should rest upon a screen a half inch or more from the bottom of the tank, to permit a free circulation of water under them.

MAINTAINING PURITY OF ITALIANS.

Question.—How can I keep pure Italians when I have but one colony and there are black bees in another apiary only 40 rods away and wild bees in the woods?

Ohio.

J. E. Steen.

Answer.—The only sure way to prevent your bees from becoming hybrids is to purchase a purely mated Italian queen from some reliable queen-breeder about every two years to supersede the old queen, for if bees are permitted to supersede their own queen, or if they rear young queens in swarming, the young queen will probably be mismated since there are no other colonies of Italians near you.

LABELING HONEY PRODUCED BY ANOTHER.

Question.—My honey labels read "Guaranteed Pure. From Vreeland Apiaries." Can I buy honey in 60-lb. tins after my own crop is sold, put it up in small packages, and use the same label, or must I state expressly that the honey was put up and not produced by myself? Everett E. Vreeland.

Massachusetts.

Answer.—The words "From Vreeland Apiaries" should be omitted from the labels used on honey which was not produced in your apiaries, since otherwise your labels would be misleading. It is not necessary to state on the label where the honey was produced. You can use the words "Put Up By," "Packed By," or simply use your own name after the word "Guaranteed Pure."

CELLAR TEMPERATURE TOO LOW AND VARIABLE.

Question.—I have a bee-cellar 12 x 16 and four feet in the ground, with concrete walls six feet high, thus extending two feet above the ground. Last winter the temperature would go as low as 32 degrees and sometimes as high as 38 degrees, but no higher. What can I do to make my cellar of a more uniform temperature of at least 40 degrees to 45 degrees?

Minnesota.

James Dearmin.

Answer.—You can raise the temperature of your cellar and make it more nearly uniform by filling in with earth to the top of the wall on the outside. During the winter it may be necessary to pack straw against the lower part of the outside of the building, so that the wall is completely covered with two feet or more of straw. An exposure of two feet of wall above the ground would make a very poor bee-cellar, for it would be influenced too much by outside

changes in temperature. Even when earth is banked up to the top of the wall on the outside, it is better to dig the cellar at least two feet deeper, then drop the ceiling of the cellar down two feet or more below the surface of the ground outside, filling in between the ceiling of the cellar and the floor of the building above with sawdust or forest leaves.

QUEEN LAYS EGGS THAT FAIL TO HATCH.

Question.—I had a queen that laid eggs in a normal manner, but none of her eggs ever hatched. Have you ever heard of such a thing?

Missouri.

W. F. Schimmel.

Answer.—Yes, it sometimes happens thru some defect in the queen that her eggs do not hatch, altho such cases are extremely rare. The only thing that can be done in such cases is to kill the queen and introduce another.

UNSEALED HONEY FERMENTS IN CELLAR.

Question.—I stored some shallow frames of honey which were not completely sealed in the cellar, and now the unsealed portion has fermented. The cellar is damp. Was this responsible for my trouble?

Georgia.

K. Lowder Reid.

Answer.—Yes, honey absorbs moisture readily, and when combs of unsealed or partly sealed honey are stored in a damp place the open cells will soon absorb enough moisture to permit fermentation. Even combs of honey that are completely sealed will in time absorb enough moisture thru the cappings, which are somewhat porous, to permit fermentation. In this case the honey expands and is forced out thru the cappings. Combs of honey should be stored in a dry place to prevent such trouble.

HOW TO TELL WORK OF LAYING WORKERS.

Question.—Today, on opening one of my hives, I found every cell in one frame had from one to ten eggs in it. Is this the work of laying workers? If so, what should I do with the colony?

Wyoming.

Earl Whedon.

Answer.—More than one egg in a cell does not always indicate laying workers. Sometimes a normal queen in a weak colony may lay more eggs than the bees can care for, in which case she may place several eggs in a cell. The condition you describe, however, is no doubt the work of laying workers, for at this season the colony should be able to take care of all the eggs the queen will lay. The eggs laid by laying workers, not being fertile, will develop into drones only, and by noting the sealed brood (if it has developed that far) you can tell if it is a drone brood by the projecting cappings, which are quite different from those of worker brood. If only drone brood is present you will know that the eggs were laid either by laying workers or by a drone-laying queen, altho in the latter case the eggs should be placed more regularly. Laying workers not only lay several eggs in a cell but they place them in various positions within the cell, sometimes even on the cell wall instead of on the base, as is done

by a normal queen. Frequently in the case of either laying workers or drone-laying queens much of the brood dies before it is sealed, apparently being neglected by the workers. These dead and discolored larvae resemble in appearance those dead from European foul brood, and such brood is often mistaken for this disease by beekeepers. The capping of such brood is quite irregular, there being capped cells only here and there over the combs.

Probably the best thing you can do with a colony having laying workers this late in the season is to unite it with another colony by placing its hive (without bottom) on top of the other hive (without cover), placing a sheet of newspaper between to cause them to unite peacefully. Some prefer to break up such colonies, shaking the bees from the combs upon the ground and taking the hive away. The combs may be given to other colonies. Earlier in the season or farther south even this late it is possible to save such colonies by giving them a frame or two of emerging brood and a ripe queen-cell, but it is difficult to introduce a laying queen to colonies having laying workers.

LAYING WORKERS. QUEEN LEFT IN HIVE IN SWARMING.

Question.—I had an argument with a gentleman who ridiculed the idea that worker bees ever lay eggs and that there is a queen left in the hive when a colony swarms. He agreed to leave these questions to your decision.

Missouri.

Hugh Miller.

Answer.—Worker bees will lay eggs after the colony has been hopelessly queenless for some time, that is, after there are no larvae left from which a queen could be reared. The eggs laid by workers, not being fertile, produce drones only. The workers which do this are called laying workers.

When a colony casts a normal prime swarm the old queen accompanies the swarm, but in the parent colony there are several sealed queen-cells. There is no queen at large in the hive until the first of the young queens emerges, about a week after the prime swarm issued, but, of course, there are the immature young queens in the cells. When an after-swarm issues (usually seven or eight days after the prime swarm issued) one or more of the young queens accompany the swarm, usually leaving one young queen at large in the hive, the others not being permitted to leave their cells until a second after-swarm issues a day or two later.

Question.—What is the best way to unite my three-frame nuclei to make good colonies for winter. Saskatchewan, Canada.

John Telfer.

Answer.—Select two or three nuclei that are standing near each other. Remove the cover from one hive, spread a sheet of newspaper over it, punch a few pinholes thru the newspaper, then set another hive (without bottom) on top of the newspaper as a second story. This, in turn, may be prepared in the same way for a third colony.

OUR early honey flow was very poor; but the situation is reversing now, and honey is coming in rapidly so that no more bees are for sale. Cotton is yielding well in many sections, and the outlook for a fall flow is good."—A. S. Conradi, Oconee County, S. C.

"As most of our honey and beeswax goes to Europe, which, I understand, is practically bankrupt, I am wondering whether it will pay to put any more time on the bees. Practically all beekeepers south of the United States are asking themselves the same thing."—Frank McCann, La Gloria, Cuba.

"This is the most disappointing year in 42. It started well, but the bees consumed all of the surplus they had stored and almost all they had in the brood-combs. Sumac flowered well but yielded poorly; however, the fall flow promises well. Colonies have been strong all season. Such is the life of the beekeeper."—Arthur C. Miller, Providence County, R. I.

"I learned last spring that when using two brood-chambers a queen will readily pass from the lower to the upper story. But so many queens will not go down into the lower body when a considerable amount of brood has hatched there. Consequently the bees will fill these combs with pollen and honey. To overcome this I exchange the two brood-chambers every week or ten days."—W. B. Erickson, Pierce County, Wis.

"It is an unwritten law with our association that no beekeeper shall place an apiary within a mile and a half of any other apiary, and all newcomers who will call on the secretary of our association will be furnished all information possible as to where a desirable location can be had if there be any within the limits of our association, which are at the present time pretty well crowded."—Gilbert Russell, Churchill County, Nev.

"There are two unusually interesting phases connected with beekeeping. One is that, if it were not for the bees that daily gather the nectar in the flowers, it would all go to waste; so the bees are wonderful conservators of a valuable natural resource. Secondly, the value of bees in the pollination of fruit and other blossoms is far greater than is the value of the honey they produce. It has been shown by Government investigation that honeybees increase the annual fruit crop at least 17% over what it would be, were it not for the work of the bees."—George W. York, Spokane County, Wash.

BEES, MEN AND THINGS

(You may find it here)

ture."—B. Harrison Oldson, Northampton County, Pa.

"I am trying out some 13-frame hives, and some of these have from 15 to 17 frames of brood, and brood to the top-bar as there is no honey for the bees to put there."—W. T. Rabb, Travis County, Tex.

"The honey flow started off here in good shape, but has been interfered with by rains and the flood in the Arkansas covering the bottoms and ruining a great deal of the sweet clover."—J. C. Allen, Finney County, Kan.

"A very delicious cold drink can be made by adding four teaspoonfuls of honey to a tumbler of cold water and thoroly dissolving it. This drink is much better than it sounds. Try it."—Norman Shaw, Calhoun County, Mich.

"We have lost heavily from spray poison here in this valley. I think about half of the bees got a dose. If it had not been for this we would have had the best crop ever known here."—George W. Saxton, Yakima County, Wash.

"When the first bee comes in with the first load of pollen in the spring, she will be seen making a great fuss and shaking herself crazily. This, I believe, is to attract the bees in the hive to her load of pollen, so that they in turn will follow this bee outside to the source of supply. Practically no attention is paid to these antics when pollen is coming in freely."—J. H. Fisbeck, St. Louis County, Mo.

"In making the 'push-in-the-comb' cages why cut out the corners as given in directions in the A B C and X Y Z of Bee Culture? Don't do it—make the cuts only on the sides and after bending down, bend the ends over the sides. Try it and see. In introducing over 200 queens this season there was not a single loss when using the push-in-the-comb plan. I want no escort bees in the cage, and it has been bothersome to get them out before the queen was run in the wire cage. Try this: Make a sleeve of zinc excluder the shape and length of the mailing cage, which permits the mailing cage to slip in readily. Loosen one end of the wire cloth covering mailing cage, raise it, and follow along with the zinc sleeve until the cage is covered. Escort bees pass thru the perforation, and the rest is easy."—E. J. Ladd, Multnomah County, Ore.

"One of my colonies gathered 70 pounds of clover honey in a little over five days. The clover field sounds more like a machine shop than a quiet pasture."

THE crop report committee of the Ontario Beekeepers' Association met in Toronto on July 21 to decide on the prices to be recommended by the association for this year's honey crop. The committee recommends for best quality extracted honey: wholesale, 15c to 18c per pound; retail, 20c to 25c per pound. Comb honey No. 1, wholesale, \$2.50 to \$3.50 per dozen; No 2, wholesale, \$1.75 to \$2.50 per dozen. These prices show a reduction of 10c per pound over those of last year.



Editors

The rumor which reached this office to the effect that the appropriation for the control of bee diseases in Florida had been reduced, as reported

on page 369, June issue, was false. Instead of this the amount set aside for bee disease work at the meeting of the State Plant Board, on July 11, was \$10,000, this being exactly twice the amount which was available last year and the year before.

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The Alabama State Beekeepers' Association will hold its annual meeting at Montgomery, Ala., on Sept. 22. This will be held during the farmers' week, when a large number of farmers and beekeepers will be attending the agricultural meeting.

* * *

Announcement has been made of two short courses in beekeeping in California by the College of Agriculture in co-operation with the United States Department of Agriculture. One of these will be held at some point in southern California during the week beginning Dec. 5, and the other at Berkeley during the following week. Dr. E. F. Phillips and Geo. S. Demuth are scheduled to carry the major portion of the program.

* * *

Colorado is to have two short courses in beekeeping conducted by the College of Agriculture in co-operation with the United States Department of Agriculture. The first of these is to be held at Fort Collins during the week of Nov. 21, and the other at Grand Junction the following week. The instructors scheduled for these two schools are Dr. E. F. Phillips, Geo. S. Demuth, Kenneth Hawkins, Wesley Foster, and Frank Rauchs.

* * *

On Sept. 28, the A. I. Root Company will hold a field day at one of its apiaries at Bay Minette, Ala., where the company has some 700 colonies of bees. Elizabeth Malden of Auburn, Ala., one of the State extension workers, who is not only for general agriculture but beekeeping, will be present. It is hoped that Prof. H. D. Hughes of Newbern, Ala., and E. R. Root of Medina, Ohio, will be at this meeting. Moving-picture films illustrating various stages of beekeeping and bottling honey will be given on this occasion. While this will be a basket picnic of beekeepers, the A. I. Root Company will serve honey ice cream, honey lemonade, and honey jumbles. Free automobile service from the station at Bay Minette to the A. I. Root Company's apiaries will be furnished.

The South African Bee Journal published at Johannesburg by the South African Association of Beekeepers, now in its first year, is a bright and newsy publication. South African beekeeping is now making great strides, and this section of the world promises to become an important honey-producing region.

* * *

The report on bees, honey plants, and honey for the July 1 schedule of the Bureau of Markets and Crop Estimates, of the United States Department of Agriculture, shows the average yield of surplus honey per colony to July 1 for the United States to be 23.7 pounds against 25.5 for 1920, and against a five-year average (1916-20) of 22.4 pounds. This yield to July 1 is estimated to be 48.7 per cent of the total crop. The figures also show that the average condition of colonies compared with normal was 89.8 per cent on July 1 as against 88 for 1920, and 89.2 per cent average for 1916 to 1920. The average condition of the honey plants as compared with normal on July 1 for the United States is given as 78.6 per cent as against 86.2 for 1920 and 84.5 average for years 1916 to 1920.

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Following is an additional list of important fairs offering prizes for beekeeping exhibits, showing the amounts offered this year with comparative figures for 1920. This list is in addition to that published on page 509 August issue.

Fair.	Location.	Date.	1920 Prizes.	1921 Prizes.
Ala. State,	Birmingham,	Oct. 3-8...	\$125.00	\$125.00
Colorado State,	Pueblo,	Sept. 26-30	314.00	?
Ga. State,	Macon,	Oct. 27-Nov. 5...	181.50	181.50
Ky. State,	Louisville,	Sept. 11-17...	49.00	49.00
Miss. State,	Jackson,	Oct. 17-22...	10.00	?
Miss.-Ala.,	Meridian, Miss.,	Oct. 10-15	10.00	19.50
Mont. State,	Helena,	Sept. 12-17...	*	185.00
Mid. Emp.,	Billings, Mont.,	Sept. 19-23	86.00	111.00
N. Y. State,	Syracuse,	Sept. 12-17	394.00	348.00
N. Car. State,	Raleigh,	Oct. 17-22.	153.00	123.00
Okl. Free State,	Muskogee,	Oct. 3-8	437.00	462.00
S. Dak. State,	Huron,	Sept. 12-17	144.00	147.00
E. Tenn. Dist.,	Knoxville,	Sep. 26-Oct. 1	*	171.00
Utah State,	Salt Lake City,	Oct. 3-8	89.00	140.00
Vt. State,	White Riv. Jctn.,	Sep. 13-16	37.00	37.00
Wash. State,	Yakima,	Sept. 19-24.	250.00	250.00
W. Va. State,	Wheeling,	Sept. 5-10	*	78.00

* No record. ? Premium list not yet received.

IN most localities bees need but little, if any, attention during September; but now, at the beginning of the month, it will be well for the beginner to

to see that the affairs of his colonies are being properly shaped for winter. To a great extent, their fate during the winter is determined this month, and it will soon be too late to correct any thing that may be wrong, in time to do any good.

If the colonies are prosperous and continue brood-rearing this month, they should be in good condition for winter; but if they are weak, short of stores, have a poor queen or become queenless so but little brood is reared, they will be in poor condition for winter. No amount of winter care can make a good colony out of one that is weak and composed largely of old bees at the end of September.

Less Number of Bees Than During Midsummer.

The beginner who has not examined his colonies for some time will probably be surprised to note the decreased number of bees at this time. Colonies that were rousing strong in June and July, filling several stories with bees, may become so reduced in numbers that on cool mornings later in this month, they will form a cluster which does not cover the combs of the brood-chamber. The expression, "strong colonies," therefore, conveys a different meaning at different seasons. In June or July a colony is not considered "strong" unless it has from 50,000 to 100,000 workers, while a strong colony late in September may have only 20,000 or 30,000 workers.

This reduction in numbers sometimes takes place quite rapidly when the colonies work hard in searching and gathering from fall flowers which yield only meager returns; but it is usually less noticeable either when nectar is more abundant or when there is no nectar available to cause the bees to wear themselves out in almost endless searching.

On the other hand, colonies that were only two-frame nuclei in July, if abundantly supplied with stores, will usually build up, so that at the end of September they are equal in strength to those that were exceedingly strong in July. In this way, if all the colonies are prosperous, there is a tendency for them to become equal in strength at the beginning of winter because of the tendency of both strong and weak colonies to rear about the same amount of brood during August and September.

Colonies that are very weak at this time, covering only a few combs, of course, can not rear enough brood to make a good win-

TALKS TO BEGINNERS

Geo. S. Demuth

ter colony; and all such should be united, for it is easier to unite the winter bees in the form of brood in September than to unite the emerged bees in October.

To unite two weak colonies, remove the cover from one of them and cover it with a sheet of newspaper, then lift the other hive off from the bottom and set it on top of the newspaper as a second story. When the hives are arranged in this way the bees of the two colonies will gnaw away the newspaper and unite without fighting. No attention need be paid to the queens unless one is much better than the other, in which case the poorer one should be killed before uniting. About a week after colonies have been united in this way, the combs of brood should all be placed together in one story, and the extra story, together with any empty combs, may then be taken away.

Beginners are often inclined to make too much increase and find at the close of the season that they have many colonies that are not strong enough for winter. When the colonies are prosperous in June and July both bees and beekeeper will sometimes greatly overdo things as to increase—the bees by swarming excessively, and the beekeeper by dividing. Beginners should remember that rapid increase is usually followed by a rapid decrease during the winter. The best way to retrieve such a situation is to reunite the divided colonies now even if, after uniting, there are only one-fourth as many colonies as before. A good colony at this time should occupy not less than seven or eight combs.

How Much Brood Should Good Colonies Have in September.

The amount of brood in the hives at this season will depend upon the age of the queen, the amount of stores in the hive, and the presence or absence of a honey flow. With a good queen, together with a moderate honey flow, there may be the equivalent of four to six combs of brood even in the North during the first half of September. With no honey flow, the same queen would have about the equivalent of two combs well filled with brood, provided the colony has a good supply of honey (not less than 10 or 15 pounds). With only a pound or two of honey in the hive, the same queen would have only a few small patches of brood when nectar is not being brought in from the fields, and under the same conditions a colony with an old queen would have but little, if any brood.

The amount of brood that is normal during the last month of brood-rearing is probably not far from that which would completely fill two Langstroth frames. To the

beginner, remembering the large amount of brood in his hives in June, this may seem to be too little for the safety of the bees; but colonies that have this amount of brood near the close of brood-rearing will have enough young bees to insure good wintering if other conditions are favorable. Brood-rearing usually ceases about the first of October in the northern States, and a few weeks later in most of the southern States, tho in a few southern locations it may be continued until later.

Management for Fall Honey Flow.

Where there is a fall honey flow, the bees may continue to gather during the entire month, but usually in decreasing amounts toward the latter part. A fall honey flow in most cases is a slow honey flow, and the bees may be considered as doing well if they gain but little more than a living during the month, tho in some localities a large part of the surplus honey of the season is stored during September. Even where this is true the beginner who has experienced an early honey flow will, no doubt, be disappointed in the small daily gain at this season, when compared with the rapidity with which honey was stored earlier in the seasons.

Bees Build Comb Reluctantly Late in Season.

As the days become shorter and the nights become cooler the bees are not inclined to build new comb freely, and when empty combs are not available in the super, they crowd the honey into the combs in the brood-chamber, sometimes leaving but little space for the queen to lay. When much honey is stored in the brood-chamber, it is stored above and back of the brood, so that the restricted brood-nest is near the entrance.

While this condition may limit the queen too much in some cases, it is well for the beginner to remember that the amount of brood is naturally diminished late in September thruout the northern States and that there is less danger to the colony in having too much honey at this time than too little.

If colonies become honey-bound in this way early in the month, it may be advisable to take out one or two combs of honey and insert empty combs or frames of foundation, placing them adjacent to combs having brood in them, so as to give the queen more room; but in many cases the trouble corrects itself by a slowing down or stopping of the honey flow. If not too late the brood will then be increased, some of the honey adjacent to the brood being used, thus giving the queen more room.

Comb Honey Production Late in Season.

On account of the reluctance with which bees build comb late in the season it is not advisable, as a rule, to try to produce comb honey at this time. It is better to harvest the fall crop, if any, as extracted honey; or have it stored in combs in an upper story,

to be left on the hive as extra stores for winter or spring; or taken off and stored in a warm room during the winter, to be given back to the colonies in the spring.

It is not advisable to disturb the order of things in the brood-chamber late in the season, for the bees now arrange their stores as they want them for winter. It would not be well, for instance, to insert frames of foundation in the middle of the brood-chamber, to be left there during the winter, even tho they are built out into full combs. Bees prefer old dark combs for their winter nest, and have their own way of arranging affairs for their safety during the winter.

As a rule, a fall honey flow results in the colonies being in good condition for winter, for the late honey flow stimulates brood-rearing, and, altho the older bees are worn out more rapidly, they are replaced by young bees which are better able to survive the winter.

Danger From Shortage of Stores.

Where there is a dearth of nectar during September, there is danger that brood-rearing will be so reduced that there are not enough young bees for good wintering; but here, again, it is usually safe to leave the matter with the bees as to the amount of brood to be reared in September, provided they do not run short of stores. The beginner should be sure that there is enough honey in the hives now, so that the bees will not be forced to stop brood-rearing too early. If any colonies are found having less than the equivalent of three or four full frames of honey, they should either be supplied with a frame or two of honey from an upper story of another colony, if such combs are available, or they should be fed sugar syrup. Colonies, which apparently had an ample supply of honey at the close of the early honey flow in July, may have consumed much of it by the first of September, if there has been none gathered since that time.

If feeding for winter is necessary it can be done this month, tho if any nectar is being gathered from fall flowers it is usually better to wait until early October to do this; for when sugar syrup is fed for winter stores it is well that it be stored after the fall honey flow is over, in order to have it stored where it will be used first, thus leaving the honey for use in brood-rearing next spring.

American Foul Brood.

When brood-combs are handled in examining the colonies for any purpose it is well to acquire the habit of glancing at the sealed brood at this season, to note if the cappings are normal in appearance. In this way, if any American foul brood should be present it can readily be detected by the discolored, sunken, or perforated cappings and the decaying remains of a dead pupa within. On this subject beginners should consult their books and bulletins.

ALMOST 50 years ago, in a union meeting of all the Medina churches I stood up and said something as follows, as nearly as I can recollect:

"My friends, you are probably well aware that I have always been a busy man; and I propose to be a busy man as long as God lets me live. But from this time on, with God's help, I expect to be busy first for the Lord Jesus Christ and for A. I. Root second.

As I sat down Satan suggested: "Why, you can never carry out that program, you *know* you can't. You had better get up and take back at least a part of it."

But, my dear friends, what a ridiculous thing that would be! There is really no backtrack in such an undertaking. I had just been getting hold of what I have sometimes called my "emergency" prayer—"Lord, help," and I asked the dear Savior to help me to "hew to the line," no matter what happened to business or anything else. In fact, as I considered the matter I did not feel really sure I would not have to drop the work of making our land "a land flowing with milk and honey." Did my new undertaking really conflict with or harm the work with the bees? I leave it to you to answer.

It did not occur to me just then, and, in fact, I do not know that I thought of it until just a few days ago. My decision at that union meeting, to put Christ first and self second, was, in fact, taking God at his word in that precious text that heads this Home paper—"Seek ye first the kingdom of God and his righteousness, and all these things shall be added unto you."

Well, a short time after the above there was a church conference not far from our town, and I was present. One reason why I dropped business for the day, was because I wanted to know more about the churches of our county and what they were doing. A few miles out of our town there is a little place called Abbeyville. One of the speakers at that conference called attention to Abbeyville as the "sore spot" of our county. A brewery and two or more saloons were running day and night, week days and Sundays, and on Sunday night they had what they called a "Dutch dance." Abbeyville is only two and a half miles from the old farm where I was born, and I knew something about the place, for I had been there years before, with other boys and



Seek ye first the kingdom of God and his righteousness; and all these things shall be added unto you.—MATT. 6:33.

Cast thy bread upon the waters: for thou shalt find it after many days.—ECC. 11:1.

He which converteth a sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—JAMES 5:20.

and I think that some smiled at the idea of a Sunday school in *Abbeyville*. Some good pastor well along in years took my part, and suggested that a committee be appointed by the church, and I was to start that Sunday school, and that was about the start of my putting the Lord's work first from that time on.

The novelty of the Sunday school attracted attention far and wide; and I had the boys and girls singing hymns and repeating texts from the platform until in a few Sundays we had the schoolhouse filled. In fact, some of the toughs of the town who did not feel like coming inside, stood around on the outside near the open windows and listened to what was going on inside.*

My good friends, there are thousands of places right now in our land where people will crowd into the Sunday schools if those schools are rightly managed. But *Satan* got wind of what was going on, and came around as he usually does. The brewer found out that it was hurting his business. One Sunday morning I found a roomful of girls and women, but scarcely a man or boy was present. In reply to my questioning I was told that the brewer had given out that during the hour of Sunday school there

* I think I ought to mention here that one feature of that Sunday school that drew the crowd was the Scripture texts that were repeated by the well-dressed juveniles. Every one who would stand up on the platform and repeat any Bible text received a picture card; and when they had a sufficient number of these picture cards containing Bible texts they received a pretty little book also published by the American Sunday School Union. As any text, no matter how short, answered, on one particular Sunday a dozen or more little ones stood up on the platform and repeated the words, "God is love." To cap the climax, one wee girl with lisping tongue stood up and sang a little hymn, the first verse of which is as follows:

"I am Jesus' little lamb;
Happy all the day I am.
I am his and he is mine;
Oh, I'm His lamb!"

Now, even if this is making a rather long footnote, I think I shall have to add that this little girl of toward 50 years ago is now the mother of two stalwart men; and both of them give promise of being a blessing in the line of chemistry and electricity, not only to our State but perhaps to our nation.

drank beer and on Sunday.

After the speaker had finished I got up and suggested that the first and best thing to do for *Abbeyville* was to start a Sunday school there. As I was a new-comer in church work, and but little known at that time, the people turned and stared at me,

would be "free beer" to anybody who wanted it. That incident calls to mind that some of the tactics that are going on now ("beer as medicine," etc.) are much like my experience away back there. What did I do? I said first, "Lord, help." Then I cut the exercises down half, and told the girls and women that we would adjourn to the brewery. Sure enough, there were my boys and men filling the room; but when they caught sight of me they rushed out at the back door and hid in the bushes. I finally succeeded with pleasant words in getting them to come back, and sing some Gospel Hymns. Then I gave them, as well as the brewer, a good square talk—of course in a kindly spirit. When permission was given me to close with prayer I prayed for the brewer, but you may be sure that I did *not* pray for his occupation.

Well, friends, the Sunday school prevailed until there was not a brewery, a saloon, nor a Dutch dance in the town, and never has been since. But it took *eight years* of hard work to head off intemperance in that neighborhood. Of course there were no automobiles at that time, and when the weather was too bad for our liverymen to let a rig go out I went on foot five miles and back again; but I firmly believe that some of the happiest hours of my life were when I was trudging thru mud and snow to that Abbeyville Sunday school. I decided then, and I stick to that position even yet, that the only sure remedy for intemperance that still afflicts the world is to bring up our children in the fear of the Lord, with the help of the Sunday schools, the Endeavor Society, Y. M. C. A., Salvation Army, and other things of that sort.

All along these years since that Sunday school was started and kept up I have found some new things to thank God for. (See our second text.) The seeds that were sown in the hearts of the children during those Sunday afternoons have borne fruit abundantly. Let me give you one little illustration. Of course I had discouragements. There were no automobiles in those days, of course, and I had no horse and buggy of my own. A good deal of the time I hired a livery; but as the fall rains came on it was somewhat of a question as to whether the Sunday school would be kept up all winter. I told the children and others that when the weather became very bad, and *nobody* came, I would be the last one to be on the ground. When I reached the schoolhouse during bad weather and found not a single boy or girl, nor anybody else, I would consider giving it up. But I was determined to be the last one on the ground.

One Sunday afternoon when it rained unceasingly, and the mud on our clay roads here in this county was just awful, I called at the livery for the horse and buggy just as I had been in the habit of doing. The liveryman said he preferred not to have his rigs taken out during such weather. I had,

however, reason to suspect that he, like the brewer, was not very much in sympathy with Sunday school work. I got some rubber boots and an umbrella and made the trip. By the way, in order to shorten the course a little when going on foot I passed thru a piece of woods. About the center of that woods was a large oak tree, and I was in the habit of kneeling away off there alone in the woods, and asking the dear Lord to bless that Sunday school, and, in fact, take my poor self into His care and keeping on week days as well as Sundays. Oh, how I did enjoy those brief stops for prayer! and what wonderful answers came along for days, weeks, and months after!

When I reached the schoolhouse on that particular day there were only two small barefooted boys there. Not at all disheartened I sat down and had a good talk with them. They told me their troubles. Their poor overworked mother was trying to care for her little family while the poor father gave the most of his scanty earnings to the brewer or to the two saloons as I called them. Before we closed our talk it was my privilege to have them both give me their promise to follow the Lord Jesus Christ. Now for the outcome.

Not many days after, one of those two boys came up to our factory. At that time our first brick building—the one with the beehive and the motto cut in front, "In God We Trust"—was just finished. The motto was made from a block of sandstone, and probably will last long after A. I. Root has gone to his reward. Well, this boy asked if I could not give him some work to help relieve his poor mother. I said, "Why, my good boy, while I admire your spirit, I am afraid you are too young and small to do any work." He replied:

"Mr. Root, I know I am small, but I will do a good job of trying if you will just give me a chance."

I told him to come with me, and I went clear thru the busy rooms but did not see any place for him until I got down into the engineer's room. The engineer was busy shoveling coal under the boiler. I asked him if he thought he could find something for the boy whom I held by the hand. He took a look at the boy and said, "Why, I think I can, perhaps. Just let him stay here and we will see."

I was so busy, about that time in my life that, to tell the truth, I really forgot about the boy. It might have been two or three days after when I came around and said, "Oh! by the way, Park, how about the boy?"

It was one of my happy surprises when he replied, "Why, Mr. Root, he is one of the brightest and handiest boys I ever ran across. He is equal to a man for a good many things."

On a later trip the report was still more favorable.

"Mr. Root," said the engineer, "that boy

knows everything about the engine almost as well as I do. When I want to be away for a little while he can run the whole institution, and keep things in splendid shape."

Let me tell you right here that that boy's name was Jacob. He not only proved to be a worker, but he made friends right and left. I might almost say that he made it his study day and night to become fully posted in regard to every detail of the A. I. Root institution.

At that time we were about half a mile from the postoffice and the bank. Our office was mainly in charge of girls and women. Let me say right here that I discovered years ago that girls and women can do almost everything that men do, and many things such as office work they can and do do even *better* than the average man or boy. The great wide world is just now finding out what I demonstrated away back. We had some very bright women in our office. I have told you something about the one we called "Queen Bess." The women in the office told me they wanted an errand boy to carry the mails and go to the bank—one who was quick and bright, and who could be *depended* on; and I do not know but they had their eyes on Jacob already. Perhaps Jacob, then getting to be quite a strapping youth, had had his eye on the office, and maybe he also got a glimpse of the way "rush orders" were pushed by some of the nice women in the office. He took the job of being errand boy to the bank and postoffice, he soon grasped every detail, and he was not afraid to push right and left in order that the business with the mails and bank might be rushed with alacrity. Jacob and his brother are still occupying important positions in different departments of the A. I. Root Co.

There is just one more thing I almost forgot to tell. Years ago Jacob was married to one of the bright girls in the office, and now has a family and a home of his own. Just a few days ago they were all shaking hands with Jacob when I inquired the reason. Some of the crowd, laughingly, informed me that Jacob had just received news that he was grandfather; and I think

the father of the newcomer, if I am correctly informed, is or was a high school professor.

By the way, the above is substantially the talk I gave in John Wanamaker's Sunday school in Philadelphia; and when I closed my talk, with the words of my favorite hymn, "From sinking sand He lifted me," there was a fluttering of handkerchiefs in that great audience of between two and three thousand.



The boy Jacob after he got to be errand boy for the nice women clerks in the office. Jacob was one of my first converts—possibly the very first. Take a good look at the boy's face and then see our second text. When he used to carry the mail from the postoffice to the factory, sometimes there were several bundles, and then he had to use the things tied to his waist in order to carry them.

HIGH - PRESSURE GARDENING

A Fruit and Truck Farm of 3,500 Acres.

Some time last winter a relative sent me a little periodical that told a story as follows:

Years ago a New Jersey farmer drove up in front of a country store and said to the merchant something like this:

"Mr. Blank, I have brought you a couple of dozen heads of nice lettuce. I wonder if you could sell them."

The storekeeper said he thought he could.

A small boy who sat beside his father in that one-horse wagon was a good deal interested in the transaction, and considerably more so when the merchant soon sent word that he wanted all the lettuce like the two dozen heads that the farmer could furnish.

Well, the reporter who told the above story made a call on that same boy after he had grown up to manhood, and had become manager of the celebrated Seabrook truck farm. While they were talking a tele-

gram came to Mr. Seabrook reading somewhat as follows:

"We want two *carloads* of lettuce such as you have been selling us, delivered here tomorrow night in New York City. Can you make it?"

The reply was "All right. You can have your lettuce."

When I read the above I said to myself, "I am going to see that great truck farm, Providence permitting."

Just one thing more: The article went on to state that from the time that boy went with his father to the country store he began experimenting along the lines of "high-pressure gardening." As he grew in experience he began using fertilizers at a rate before unheard of. For several years he worked in company with his father; but his father actually got scared at the amount he was paying for manure and other fertilizers for just one acre of ground.

Now, friends, as Mr. Selser was with me on my travels in New Jersey, and especially in Philadelphia, and on account of my defective hearing, I will let him tell things in his own words as to where we went and what we saw.

On July 8 we visited a number of the bogs containing 600 acres in all of cranberries, which were out in bloom and fruit. The berries grow on little single shoots, hardly big enough to be called a bush (about 3 to 5 inches high). They are subject to a number of insect pests, which are overcome by flooding the bogs two or three times during the season, as can be easily done from the adjacent dams. There is, however, a blight or fungus which attacks the fruit. The State has now an immense \$5,000 high-power sprayer, which produces 1,000 pounds pressure to the square inch. This was operating at 600 pounds pressure and throwing the spray, which looked like a fine snow, about 300 feet. Mr. Chambers, a son-in-law of Mr. White, was assisting the State authorities in operating the sprayer. The hose, 1½ inches and very heavy, has to be taken apart in sections and carried thru the bog by two or three men.

We then returned to Mr. Hornor's by way of Camp Dix, where several hundred West Point cadets were in camp. We saw only a couple of them. These buildings, which during the war were occupied by some hundred thousand men, are of frame structure but not in very good condition. The Government has recently purchased this ground and expects to establish a permanent camp at this place.

At Finley, N. J., near Bridgeton, on July 8, we visited the Charles F. Seabrook cucumber plantation. We met the manager, Charles F. Seabrook, and W. W. Oley, general manager of the New Jersey State Experiment Station. We were conducted by auto thru the extensive orchards and vegetable fields. The farm has 2,000 acres devoted to fruit culture and 1,500 acres devoted to berries, vegetables, etc. They have a nursery and grow their own trees. When they buy them, they send Mr. Oley into all parts of the United States to select all their requirements. Among the young one and two year-old apple trees they are growing a succession of bush lima beans. At the present time they have 800 acres in beans. They are just erecting a vinery—a large building in the center of the bean district containing six new, improved machines for shelling and cleaning the lima beans. The vinery will start operating soon, and the beans are so planted that these machines will be in continuous operation from now until fall. They put these beans up in cans.

We were then conducted to their cucumber houses, six in all, where they are now shipping cucumbers to the value of \$300 a day. At the present time they are getting \$1.25 a dozen. They

have shipped this season \$4,000 worth of cucumbers. Mr. Seabrook's uncle conducted us thru this establishment and showed us bees in specially constructed hives at each opposite end of each greenhouse with an entrance both in the greenhouse and on the outside. They arranged the greenhouse by taking away some panes of glass adjoining the inside entrance for the bees. The top row of glass on the entire greenhouse is always left open so that no bees are lost by getting out and going to the wrong hive. Mr. Seabrook claimed that this removing of glass adjoining the hive was the latest method, which absolutely insured the success of the bees returning to each hive, where prior to that hundreds were lost in the greenhouses. This day they were taking off the supers which were filled with honey. I told them of one fruit-grower in New Jersey who had offered \$500 for the rental of 100 colonies of bees among his orchards for three weeks next year. He felt that this was very important, and said that another season he was going to see that they had a big quantity of bees well distributed, and would increase them from year to year as the trees grew to fruit-bearing.

We then visited the ice plant and cold storage warehouses connected with a pre-cooling plant where they were shipping out cabbage, after it was pre-cooled, which insures perfect delivery no matter how hot the weather is. They were turning out 20 tons of ice that day. Adjacent to the cold storage and ice plant were 200 acres of berries and vegetables under irrigation. They were then harvesting large fields of onions, and were shipping two to three carloads of onions every day. It was a beautiful sight to see the Italians cleaning the onions and packing them in hampers for shipping. After the cucumbers are taken out, lettuce is planted, followed by radishes. They ship 17 carloads of lettuce out each day to various markets.

The perfect irrigation thru the pipe system was a wonder to Mr. Root. Mr. Root was simply amazed, and enjoyed every minute at this wonderful plantation. Mr. Oley was exceedingly solicitous that Mr. Root should have a full explanation of every part of this plantation that he wished.

On July 9 we visited the Foster Exhibition Pavilion where Airline is to have an exhibit in their north window on the board walk for two weeks over Labor Day, beginning Aug. 27. The lady secretary was very anxious to meet Mr. Root, and expressed her opinion that it was a marvelous thing that he should be the head of such a successful corporation and continue to be so active up to the age of 82 years.

We took a wheel chair and had an hour and a half's ride up the board walk to the inlet. We saw the thousands of bathers on the beach and the aeroplane boats taking passengers at intervals along the ocean front. On returning to our starting point and paying for our hour and a half's ride at the rate of 75 cents an hour, the pusher claimed we owed him 25 cents each an hour for his work. We inquired of the officer and the proprietor, both of whom evaded the subject, showing that there was a general concerted action on the part of the pushers of these wheel chairs to fleece the public. However, the proprietor was forced to acknowledge that the rate he charged included the pusher; and on further investigation he stated he paid the pusher 40 cents for pushing the chair during the time we occupied it. Therefore, we refused to pay him anything additional, for which we received somewhat of a blackguarding by the pusher himself. We felt like informing the mayor of the city that their fellows were in league with this imposition, but concluded our time would not permit. We returned to Philadelphia on the two o'clock train, going direct to Jenkintown, and in the evening visited Willow Grove Trolley Park. This wonderful place is well policed and visited every day by seventy to a hundred thousand people. We listened to the evening concert by Victor Hubert's orchestra (getting a front seat) in which Mr. Root was intensely interested. Benches surrounded the auditorium and were scattered for acres in every direction, seating many thousands of people.

After seeing the many amusements in the various parts of this park, we visited Venice, in boats, traveling for 10 minutes thru canals and streets representing the various parts of this wonderful city. From there we went to the lake, where the

electrical current effectively played, electric fountains showing marvelous colors and formations in the water.

On Sunday, July 10, after breakfast we visited the golf courts and club adjoining Mr. Selser's home, comprising 128 acres, left in trust to the Friends Society 200 years ago by a descendant of William Penn for the benefit and education of the Friends' children. Mr. Root was amazed at the vastness of the grounds, with the short-cut lawn, greens, and tees of the club.

At one o'clock we visited John Wanamaker's Sunday school, having secured an up-to-date electric automobile (costing about \$5,000), driven by a licensed chauffeur. Mr. Root enjoyed every part of this trip from Jenkintown to 22 Bainbridge, where the church is located, a distance of about 14 miles. Mr. Root was ushered to the platform and took a seat by the side of Mr. Coyle, the acting superintendent, and John Wanamaker, the real head superintendent. Mr. Wanamaker was delighted to meet Mr. Root, and before Mr. Wanamaker reviewed the lesson from the desk he called on Mr. Root, after introducing him as the head of the bee industry of the United States, and the founder and lover of Sunday schools. Mr. Root spoke for about five minutes very effectively and forcefully on his experience in the founding of a Sunday school in a community dominated by the brewers' interest where everybody predicted no Sunday school would succeed. (Mr. Coyle turned to me and said, "What a wonderfully clear voice for a man of his age, and how well he is making everybody hear all he says.") After explaining how he had gathered the Sunday school together, thru visiting the mothers as well as the children, and had established a large school, which finally drove out the brewers' interest, he closed with the beautiful words of the hymn, "From sinking sand He lifted me." Mr. Wanamaker was very visibly affected. He extended his hand when Mr. Root sat down, with most cordial and hearty praise and thanksgiving for his speech. A Mrs. Miller was called on to sing, with the most wonderful voice we ever heard, with a plea in the song "to open the doors of our hearts to the sunlight and open the doors of our hearts to the smile."

Mr. Wanamaker then followed for 15 minutes with an exposition of the lesson on "The death and stoning of Stephen." He mentioned a striking coincidence that, that very morning, he had spoken on the subject of bees and their hives without any knowledge that Mr. Root was going to be present in the afternoon, and expressed the thought that somehow there was an underlying influence in bringing this about, and so appreciated Mr. Root's address. He said that today he had been superintendent of the school just 63 years, 4 months and 20 days, and he hoped God would spare him to live 63 years more, his age now being 83, and he was glad to be able to hear Mr. Root at his age tell how he loved the Sunday school. He spoke of the death of Stephen, and said Stephen didn't see the stones coming at him, or anything surrounding him; but he looked up and saw Jesus. Mr. Wanamaker asked, "What is death in the world, if we are looking up to Jesus?"

Mr. Wanamaker pointed to the side platform, showing a beautiful oil painting that was his birthday present, the subject being the old Farm House at Selgra in England, showing George Washington's old ancestral home. He said the Bible was a wonderful guidebook to another world, and it was well for us to study this guidebook. He closed with an illustration of the dying soldier, who was asked if he was a church member, and he said "Yes"; and the second question to the dying man was, "Under what persuasion?" and the dying man's reply was from the Apostle Paul: "I am persuaded that neither life nor death nor principalities, nor things present nor things to come * * * shall separate us from the love of God which is in Christ Jesus our Lord." A wonderfully big male chorus sang very effectively "Stealing away to Jesus," in which Mr. Root gave a hearty and audible amen, and Mr. Wanamaker almost clapped his hands in appreciation of Mr. Root's expression.

The three galleries and class-room were arranged in a circular form, holding 3,000 people. Mr. Root was amazed and said it was the most wonderful building and school he was ever in. Mr. Wana-

maker presented Mr. Root with two fans. Attached to each side of the fans was an order of exercises for the summer months at Bethany Sunday school, with a number of beautiful hymns they sing.

We returned home in the electric automobile thru the western part of the city, Fairmount Park and Wissahickno Drive. W. A. Selser.

Jenkintown, Pa., July 11, 1921.

In regard to the cranberries mentioned above, it seems that Miss White and her people had been experts in the cranberry business before she started her experiments with blueberries. The reference to Camp Dix gave me a glimpse of the awful *price* the great World War cost the United States, to say nothing of other nations. I think the camp is something like two miles long and a mile and a half wide, pretty well covered with cheap plain buildings. Most of them are now, however, in bad repair. Windows were broken out, and everything was going to ruin. Oh, what a contrast between high-pressure *gardening* and high-pressure *murder*, if I may use the term!

Now, I can not begin to tell all I saw on that great Seabrook farm. As an indication, however, of the careful way in which Mr. Seabrook manages, let me mention one little item.

In purchasing fruit trees, no matter where you get them, there is more or less liability that when they come to bearing they will not be true to name; and so the manager, Mr. Oley, explained that he went to bearing trees and procured from them such buds as he wanted. He took these to Storrs & Harrison, the celebrated nurserymen, and asked them to insert them in their best trees of the right age, and when they were fully started they were to ship him the trees. In this way they have thousands of fruit trees that bear or will bear just such fruit as experience has indicated is best for their location; and everything else on that great farm is done in just that way. Railways are everywhere to pick up the crop, and beautiful graded and improved roads facilitate the gathering of such a crop. They are practically independent of rain on the 200 acres that are under overhead irrigation. They have their own ponds and lakes to supply water. They manufacture their own ice for the refrigerator cars or for "pre-cooling." They have a large trade in canned lima beans. These beans are shelled before canning; and I was greatly surprised when they told me that six great machines were built on purpose to shell *green* lima beans before putting them into cans. Of course they have their own canners.

This whole institution shows how great enterprises are managed much as manufacturing is. Steam and electric power and the best up-to-date machinery in the whole wide world contribute to do things by power where before it was done by hand; and it is possible because of the magnitude of the tremendous crops that are produced, and by the up-to-date methods, and by doing it on a large scale, instead of a *little* of "this, that, and the other."

The item in regard to tipping indicates the way in which friend Selser with his large circle of acquaintances in a great city is able to rebuke and reprove graft. I have before told you that in Tennessee they have a law against "tipping" on Pullman cars. Now, I object to what is called tipping; but at the same time when a porter or anybody else puts himself out of the way to give me a helping hand I am willing to reward him reasonably. But I do not believe in giving half a dollar nor even 25 cents for every little service rendered. Mr. Calvert once offered a porter ten cents for some little service. The porter handed it back, indicating by his action that he was not in the habit of getting less than a quarter of a dollar or a half. I mentioned this to Mr. Selser, who said that he himself often gives a dime or even a nickel. In one case he mentioned the fact that he offered a nickel to a boy in a big hotel for some trifling service. The boy threw the nickel on the ground. Mr. Selser reported the transaction to the man at the desk. The boy was called up and dismissed on the spot. The proprietor of the hotel said something like this:

"Young man, I give you to understand that the guests of this hotel are not be insulted by even a small boy like yourself."

I was curious about the wheel chairs used there. A bronze plate was very conspicuous on the front of every vehicle, reading, "75 cents an hour for two passengers; \$1.00 for three passengers." Nothing was said about a man to push the chair. But our "pusher" took the ground that the price was for the wheel standing still. I suppose that in that great thoroughfare in Atlantic City most people submit to the graft rather than to complain or make a fuss.

The Hubam Clover, by Professor Hughes Himself. Also a Kind Word for Our Home Department.

On page 445 of our July issue I suggested that Prof. Hughes might have noticed my experiments in trying to find a superior strain of the biennial sweet clover, these experiments having been made some years ago. From the following letter, however, it seems quite plain that our good friend Hughes knew little or nothing of my work along that line.

Dear Mr. Root:

I have not had ready access to Gleanings in Bee Culture, but occasionally have seen a copy; and one afternoon last spring went to the chemistry building of the Iowa State College, where the bee journals are housed, to acquaint myself with your journal. I had thought to be there for a few minutes; but before I knew it, it was half-past five and the librarian closing, so I secured permission to take Gleanings home with me. I told Mrs. Hughes that it was the most pleasant half day I had spent, and the following Sunday I read selections from your department to the whole family—to the enjoyment of all. And the selections had nothing to do with Hubam clover either—but concerned the things most worth while in life. I am told that during a great banquet once being held in London in honor of the man who discovered

chloroform he was asked which of his discoveries he thought most important. His reply was, "The most important discovery I have made was the fact that I was a sinner and needed Jesus Christ as my Savior." I assure you that I would very much appreciate receiving your journal regularly.

With regard to Hubam living thru the winter and seeding again the following spring, we have many reports that this is the case. From Washington, Oregon, and California where the plants have made a growth of from five to nine—and even eleven—feet with a heavy crop of seed, we have reports that they have come again the following year and repeated the performance. We have also had similar reports from Maryland and Virginia and one from Illinois. In these cases nearly every plant produced a crop of seed both the first and second years; but from all sections of the country plants have produced crops the first year and lived thru the winter. I am inclined to believe that in a good many cases these plants did not produce seed the first year, but were either biennials or hybrids. A number of these hybrid plants have been, and are, under observation at Ames where they have not proved to be hardy plants, every one of them winterkilling, tho some of them have made a wonderful growth.

Last fall we took 20 or 30 into the greenhouse and produced during the winter self-fertilized seed, which have been planted in the fields this spring. We have also made a very large selection of seed from individual plants; of these about 170 were planted in the greenhouse last fall from which self-fertilized seed were produced. The open fertilized seed secured last fall together with the self-fertilized seed have all been planted in the fields at Ames this spring.

Very truly yours,
H. D. Hughes.

Newbern, Ala., June 21, 1921.

HUCKLEBERRIES FOR BEES, AND BEES FOR HUCKLEBERRIES.

After the article on pages 514-516 was all set up, Miss White writes in regard to the opening paragraph of said article as follows:

"Dr. Frederick V. Coville, U. S. Department of Agriculture, discovered the need of acidity, and Miss E. C. White located the wild bushes."

She also adds as below:

My dear Mr. Root:

Blueberries are nearly or quite sterile to their own pollen, and it is necessary to plant two varieties in close proximity and to have bees to do the pollinating. The tubes of the blueberry flowers are just about as long as Italian bees can negotiate. Wild bumblebees and little wild bees that can creep into the flower tubes do the work more easily. The honeybees, nevertheless, are constantly found at work on the blueberries, and I consider their presence near the blueberry fields of great importance.

I appreciate greatly your interest in our blueberry development and the help of the publicity you are giving it. With many thanks.

Sincerely yours,
Elizabeth C. White.

New Lisbon, N. J., July 18, 1921.

Blueberries in Florida.

On pages 515 and 516, last issue, I mentioned blueberries in Florida. On the latter page Mr. Sapp's name was mentioned. Below is something I have just received from that nurseryman:

Mr. Root:—

I have no catalog of my blueberry orchard, as I contracted all my plants to the Carmen Grape Co., Oldsmar, Fla. I have about ten acres in blueberries. They do well in this part of Florida. They are free from disease and insect pests, and average from 25 to 40 quarts to the bush. From old trees I have sold several hundred quarts this year. They last from the middle of May to the middle of August.

M. A. Sapp.

Crestview, Fla., Aug. 4, 1921.

Classified Advertisements

Notices will be inserted in these classified columns for 30c per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISEMENTS DISCONTINUED IN GOOD STANDING.

(Temporary advertisers and advertisers of small lots, when discontinued, are not here listed. It is only regular advertisers of regular lines who are here listed when their advertisements are discontinued when they are in good standing.)

John G. Miller, E. E. Mott, J. D. Beals, A. S. Tedman, Jes Dalton, H. N. Boley, J. B. Notestein, Prof. W. A. Matheny, H. G. Quirin, Jul Buegeler, G. H. Merrill, M. F. Perry, Arlie Pritchard, Matthews Engineering Co., Frank Bornhoffer, Norman Brothers' Apiaries, Ohio Valley Bee Co., M. C. Berry & Co., Cavies Distributing Co.

HONEY AND WAX FOR SALE.

FOR SALE—Fancy clover honey in 60-lb. cans. Jos. Hanke, Port Washington, Wis.

FOR SALE—Choice white clover honey in 60-lb. cans—none finer. J. F. Moore, Tiffin, Ohio.

FOR SALE—Choice white sweet clover honey in two sixties, \$14.00. The Stover Apiaries, Mayhew, Miss.

FOR SALE—Fine quality raspberry milkweed honey in 5-lb. and 10-lb. pails and 60-lb. cans. P. W. Sowinski, Bellaire, Mich.

FOR SALE—A ton of extracted honey suitable for baking purposes. E. D. Townsend & Sons, Northstar, Michigan.

FOR SALE—Finest clover and basswood honey in 60-lb. cans. Sample 15c. Write for prices. A. S. Tedman, Weston, Mich.

FOR SALE—8000 lbs. choice white clover extracted honey. Sample 20c, applied on first order. C. H. Hodgkin, Rochester, Ohio.

FOR SALE—Several thousand pounds of the finest quality clover extracted honey. New cans and cases. None better produced. Howard Townsend, Northstar, Michigan.

FOR SALE—Extra choice extracted white clover honey, put up in new 60-lb. cans and 5-lb. pails. Sample 20c, same to apply on first order. David Running, Filion, Mich.

FOR SALE—Clover, basswood, or buckwheat honey, comb and extracted, by the case, ton, or carload. Let me supply your wants with this fine N. Y. State honey. C. B. Howard, Geneva, N. Y.

FOR SALE—White clover honey, almost water white. Put up in new 60-lb. tin cans, two to the case. Write for prices. D. R. Townsend, Northstar, Mich.

FOR SALE—Our crop of 60,000 lbs. finest quality comb and extracted honey. Also 4000 lbs. of last year's extracted honey at reduced prices. Gelsner Bros., Dalton, N. Y.

FOR SALE—White honey, 15c a lb.; L. A. alfalfa, 14c, in two 60-lb. cans; Chilian in 165-lb. kegs, 10c; light amber honey in 50-gal. lbs., 80c a gal. Beeswax, 30c a lb. Walter C. Morris, 105 Hudson St., New York City.

CHOICE clover honey in new 60-lb. cans, all produced on new combs. Sample 20c. W. B. Crane, McComb, Ohio.

FOR SALE—Extracted clover and basswood honey, 60-lb. tins; also fine grade buckwheat in pails and 60-lb. tins. Leroy Lloyd, Caywood, N. Y.

FOR SALE—A-1 diamond-clear white sweet clover honey, in new 60-lb. cans, two cans to the case, 10c a pound, f. o. b. Merville, Iowa. Virgil Weaver.

FOR SALE—Clover-basswood honey in new 60-lb. cans, also buckwheat extracted in cans and kegs. Write for price. E. L. Lane, Trumansburg, N. Y.

FOR SALE—12,000 lbs. of choice white clover honey in 60-lb. cans at 15c per lb., f. o. b. Brooksville, Ky. Sample 25c. W. B. Wallin, Brooksville, Ky.

FOR SALE—White honey in 60-lb. cans, also West Indian in 50-gal. barrels. Sample and price on request. A. I. Root Co., 23 Leonard St., New York City.

FOR SALE—Finest white clover extracted honey. One 60-lb. can, \$9.60; two 60-lb. cans, \$18.00, f. o. b. Holgate, Ohio. 5-lb. pail, \$1.25; 10-lb. pail, \$2.25; delivered to 4th postal zone. Noah Bordner, Holgate, Ohio.

EXTRA fine white sweet clover honey, new crop, in 5-gal. cans, case of two cans, \$15.00; one can, \$8.00. Write for prices on a ton or a carload. Sample 10c. C. S. Engle, 200 Center St., Sioux City, Iowa.

EXTRA fancy well-ripened clover honey in new 60-lb. tins, two cans to the case, \$16.00 per case. Write for prices on large quantities. Sample 20c to be applied on first order. Edw. A. Winkler, Joliet, R. D. No. 1, Ills.

HONEY FOR SALE—In 60-lb. tins, water-white orange, 14c; water-white sweet clover, 12c; extra L. A. sage, 11c; N. Y. State buckwheat, 10c, for immediate shipment from New York. Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE—New crop finest quality white clover and basswood extracted honey in new 60-lb. tin cans, two cans in case at \$13.00 per case, f. o. b. Sample, 10c. Daniel Johnson, Cazenovia, R. D. No. 2, New York.

FOR SALE—Extra fine Michigan white clover and basswood honey. Almost water white. Indeed, I doubt if the color, body, and flavor can be beat. Put up in 60-lb. cans, two to the case, at 15c per pound, or in 5-lb. pails, 50 to the barrel, at 17c per pound. Sample 15c. O. H. Schmidt, R. D. No. 5, Bay City, Mich.

I HAVE about 30,000 lbs. of choice sweet clover honey and to get some cash hurriedly I will sell it at 10c per pound f. o. b. Don't think anything wrong because it is cheap, for it is clear and all sealed on hives before extracting, and put up in second-hand cans that are as good as new on inside. Try it. Joe C. Weaver, Cochrane, Ala.

FOR SALE—New crop choice clover extracted honey packed in NEW cans and cases at wholesale price of \$14.85 per case of two 60-lb. cans and \$14.40 per case on orders of five cases or more. I will have only a half crop. A few cases of last year's clover honey at 10c. No. 1 comb honey, \$48 per carrier of 8 cases. No better honey is produced than mine. Sample 20c. J. D. Beals, Oto, Iowa.

RASPBERRY HONEY, blended with willow-herb honey, two of the best honeys produced in northern Michigan. It was left on the hives until thoroughly ripened by the bees. It is thick, rich, and of the finest flavor—none finer for table use. It is put up in 60-lb. cans. Price, two cans in a case, \$18.00; one can in a case, \$9.50. Sample by mail, 20c, which may be applied on purchase of honey. Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE—Clover, basswood, or buckwheat honey, in 5-lb. or 10-lb. pails, or 60-lb. cans. H. B. Gable, Romulus, N. Y.

FOR SALE—Extra fine clover honey in new 60-lb. cans, two to the case, at \$15.00; also in 30-lb. cans at \$3.75 for one can. Martin Carsmoe, Ruthven, Iowa.

YOU only have to buy 600 pounds of E. D. Townsend & Sons' fine clover extracted honey to get their very lowest wholesale price this year. If your customers require the best, write them at Northstar, Michigan, for their price.

FOR SALE—No. 1 white comb honey, \$6.00 per case; No. 2 white comb, \$5.00 per case of 24 sections, six cases to carrier. Clover extracted, two 60-lb. cans to case, 15c a lb.; clover in five-lb. pails, \$1.00 each, 12 pails to case. Amber baking honey in 60-lb. cans, 10c; same in 50-gal. barrels, 8c. H. G. Quirin, Bellevue, Ohio.

FOR SALE—A carload of the very finest quality extracted honey. This crop of honey was produced above excluders, in white combs that have never been used for brood; then the entire crop was left upon the hives until some time after the close of the honey flow, so is very thoroly cured by the bees. It is being put into new 60-lb. net tin cans, in fact, not a single thing has been neglected to make this crop of honey the finest possible to produce. It was gathered from white clover principally, with a very little basswood mixed in it, perhaps 5%. Of course, this fine honey is worth more than ordinary honey and we have to ask just a little above market price for it, so those not having a market that will pay a little more for an extra quality honey, had better not write about this year's crop of honey. The crop will be ready for the market some time this month, August. E. D. Townsend & Sons, Northstar, Michigan.

HONEY AND WAX WANTED.

HONEY WANTED—Give particulars in first letter. Elton Warner, "Beaverdam," Asheville, N. C.

WANTED—Honey, section, bulk comb, and extracted. W. A. Hunter, Terre Haute, Ind.

HONEY wanted, send sample, state lowest price. E. A. Harris, Albany, Ala.

BEE SWAX WANTED—For manufacture into SUPERIOR FOUNDATION. (Weed Process.) Superior Honey Co., Ogden, Utah.

WANTED—Comb and extracted honey. State price. Send sample of extracted with first letter. A. W. Yates, 3 Chapman St., Hartford, Conn.

WANTED—Beeswax, also old comb and cappings to render on shares. Will buy your share and pay the highest market price. F. J. Rettig, Wabash, Ind.

WANTED—All kinds comb and extracted honey and beeswax. Car lots or less—and full colonies of bees. W. C. Morris, 170 Rossiter Ave., Yonkers, N. Y.

WANTED—Beeswax. We are paying 1 and 2c extra for choice yellow beeswax, and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address, so we can identify it immediately upon arrival, and make prompt remittance. The A. I. Root Co., Medina, Ohio.

WE BUY honey and beeswax. Give us your best price delivered in New York. On comb honey, state quantity, quality, size, and weight of sections and number of sections to a case. Extracted honey, quantity, quality, how packed, and send samples. Charles Israel Bros. Co., 486-490 Canal St., New York City.

WANTED—Extracted clover honey (new crop). State how packed. Send sample and name lowest price f. o. b. Brooksville, Ky. H. C. Lee.

WANTED—Shipments of old combs and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, O.

OLD COMBS WANTED—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings, or slumgum. Send for our terms and our new 1921 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

WANTS AND EXCHANGES.

WANTED—First editions of the writings of noted books on bees. Apply to Mrs. Fox, Foxden, Peekskill, N. Y.

WANTED—Honey in exchange for Cleveland suburban 40x120 lot worth \$400. G. Tutthill, Marine Bldg., Chicago, Ill.

WANTED—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax. Superior Honey Co., Ogden, Utah.

WANTED—To trade good tested queens of the Moore strain for a good rabbit dog. Beagle hound preferred. Elmer Hutchinson & Son, Lake City, Mich.

BEE SWAX wanted. Old combs (dry) and cappings for rendering. Also wax accepted in trade. Top market prices offered. A. I. Root Co. of Iowa, Council Bluffs, Iowa.

FOR SALE.

HONEY LABELS—New designs. Catalog free. Eastern Label Co., Clintonville, Conn.

FOR SALE—A full line of Root's goods at Root's prices. A. L. Healy, Mayaguez, Porto Rico.

ROOTS BEE SUPPLIES—For the Central Southwest Beekeepers. Beeswax wanted. Free catalog. Stiles Bee Supply Co., Stillwater, Okla.

PORTER BEE-ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies. R. & E. C. Porter, Lewiston, Ill.

FOR SALE—"SUPERIOR" FOUNDATION, "quality unexcelled." Let us prove it. Order now. Superior Honey Co., Ogden, Utah.

FOR SALE—Sweet clover seed, this year's crop. \$2.50 per bushel in the hull. Order now and save money. The Stover Apiaries, Mayhew, Miss.

FOR SALE—A quantity of shipping cases to hold 24 sections 4 x 5 x 1½ or 1¾, with glass, complete, cases of 25 for \$10.00. A. G. Woodman Co., Grand Rapids, Mich.

HONEY CONTAINERS, one pound and one-half pound flint glass honey jars. These jars are the tall variety so popular recently. Prices are right. Heard & Woodhull, 4696 18th St., Detroit, Mich.

PATENT FOR SALE—New beehive patent Feb. 22, 1921. The one who will be pleased with it may write to this address. Dmytro Podhajny, Box 11, Algoma, W. Va.

FOR SALE—One 4-horse power gasoline engine. Just the thing to run an extractor. Have used same for this purpose for two seasons. Price \$60, f. o. b. Syracuse, N. Y. Chas. G. Schamu, University Block, Syracuse, N. Y.

HUBAM, or White Annual Sweet Clover. Grow it for your bees, and get a seed crop, while the seed is scarce. Booking orders for fall delivery. E. G. Lewis Co., Media, Ills.

SHIPPING CASES—1000 12-lb. three-row shipping cases, 2-inch glass for $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ -inch plain sections. These cases are complete, KD, packed in crates of 50. Price per crate, \$12.50. The A. I. Root Co., Medina, Ohio.

FOR SALE—270 24-lb. safety shipping cases for $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$ sections, flat with glass, crates of 10, per crate, \$7.25; 140 24-lb. safety shipping cases for $4 \times 5 \times 1\frac{1}{2}$ sections, flat with glass, crates of 10, per crate, \$7.25. The A. I. Root Co., 224 West Huron St., Chicago, Ills.

FOR SALE—30 new modified Dadant hives, all frames wired, brood frames have full sheets of foundation for supers included, but not in the frames. Well nailed and painted, \$6.50 each, or \$180 for the lot. Brand-new 8-frame automatic reversible power extractor, and honey pump, \$100. Weber Bros., Wathena, R. D. No. 4, Kans.

FOR SALE—Five-gallon square cans with $1\frac{3}{4}$ -inch cork-lined screw cap, one can in case, 75c, two cans in case, \$1.35. Light brood foundation in 25-lb. boxes only, per lb. 65c. Also ten-frame hive bodies, reversible bottoms and covers nailed and painted. Lake Region Honey Co., Birchwood, Wis.

MEDICINAL roots and herbs are very profitable to grow. We especially recommend growing Golden Seal, which with good care will yield as high as \$10,000 per acre for each crop. It takes several years to mature but will average \$1000 a year. Special Crops, a monthly paper, tells how. Sample copy, 10c; \$1.00 per year. Address Special Crops Pub. Co., Box "G," Skaneateles, N. Y.

REAL ESTATE

FOR SALE—20-acre farm, 200 colonies of bees, and equipment, $\frac{3}{4}$ acre ginseng and Golden Seal. L. Francisco, Dancy, Wis.

UP-TO-DATE apiary and home in village of Eastern New York, 305 colonies, power extractor, concrete sidehill cellar, auto truck, tractor, and complete modern outfit, \$10,000, half down. D. L. Woodward, Clarksville, N. Y.

FOR SALE—30 acres of land near Arcadia, Fla., bungalow house with two large porches, 40 colonies of bees, more or less; 250 colonies of bees in six apiaries along the Caloosahatchee River. Fine locations for honey, to ship bees or rear queens. No disease. Ward Lamkin, Arcadia, Fla.

FOR SALE—An improved 80-acre farm 4 miles from Iola, Kans. This farm would make an ideal place to keep bees and live stock, as every foot of it will grow sweet clover or white clover. The pastures are white with white clover, and sweet clover grows wild along the railroads and wagon roads, and is grown on cultivated land to some extent. A good local market could be developed in Iola, a county seat town of 9000 people. No large apiary close. \$85 an acre takes this bargain and will carry half back into farm. Roy B. Crumb, Powhattan, Kans.

BEEES AND QUEENS

FOR SALE—Italian queens, nuclei, and packages. B. F. Kindig, E. Lansing, Mich.

HARDY Italian queens, \$1.00 each.
W. G. Lauver, Middletown, Pa.

SIMMONS' ITALIAN QUEENS, bees, and nuclei. Fairmount Apiary, Livingston, N. Y.

SEE our large advertisement on page 595 for prices. Buckeye Bee Co., Justus, Ohio.

WHEN it's GOLDEN, it's PHELPS. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE—100 colonies bees in lots to suit buyer. R. S. Beckett, Rifle, Colo.

GOLDEN Italian queens, untested, 1, \$1.25; 6, \$7.00. E. A. Simmons, Greenville, Ala.

MY famous Italian queens, June 1 and later, \$1.50 each, six for \$8.00. J. W. Romberger, Apianian, 3113 Locust St., St. Joseph, Mo.

QUEENS—Three-banded Italians, untested \$1.25 each; \$12.00 for 12. Satisfaction guaranteed. J. D. Kroha, 87 North St., Danbury, Conn.

FOR SALE—Fine three-banded Italian queens. Untested, \$1 each; 50 for \$47.50; 100 for \$92.50. Curd Walker, Jellico, Tenn.

FOR SALE—200 colonies of bees in eight-frame hives with supers for \$8.00 each. Mrs. T. H. Caruth, Big Bend, La.

FOR SALE—Golden Italian queens, untested, \$1.00; 6, \$5.00. Tested, \$2.00. J. F. Michael, Winchester, Ind.

PHELPS GOLDEN QUEENS will please you. Mated, \$2.00; 6, \$10.00; or \$18.00 a doz. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE—20 colonies bees in standard L. hives, \$10.00 per hive. T. A. Kragness, 6031 Wentworth Ave., Chicago, Ills.

FOR SALE—Untested Italian queens, three-banded only, \$1.50 each; \$8.00 per half doz., \$15.00 per doz. J. F. Garretson, Bound Brook, N. J.

BEEES AND QUEENS from my Carolina apiaries—progeny of my famous Porto Rican pedigreed breeding stock. Elton Warner, Asheville, N. C.

THE A. I. ROOT CO. pure leather-colored queens, untested, 1, \$1.25; 6, \$7.00. Greenville Bee Co., Greenville, Ala.

FOR SALE—Bright Italian queens, \$1.50 each; \$14.00 per doz. Ready after April 15. T. J. Talley, Greenville, R. D. No. 3, Ala.

FOR SALE—Golden queens ready May 1; 1, \$1.25; 12, \$10.00; 100, \$85.00. Virgins, 75c each. W. W. Talley, Greenville, R. D. 4, Ala.

PROMPT shipment of Golden or three-banded queens. Untested only. One, \$1.25; 6, \$7.00; 12, \$13.00. Safe arrival and satisfaction. Ross B. Scott, La Grange, Ind.

FOR SALE—500 colonies fully equipped, \$1500, easy terms, near English colony. Very healthful, wonderful flows, local market. M. C. Engle, Herradura, Cuba.

FOR SALE—Leather-colored Italian queens from Dr. Miller's breeder. Virgins, \$1.00; mated, \$1.50; tested, \$2.50. F. R. Davis, Standfordville, Dutchess County, N. Y.

AM now ready to mail out young queens of Dr. Miller strain leather-colored Italians, by return mail at \$1.25 each. A few breeders for sale. S. G. Crocker, Jr., Roland Park, Baltimore, Md.

COLORADO QUEENS—Pure Italians. Our sunny climate and altitude produce the best there are. Write now for price list. C. I. Goodrich, breeder of fine queens, Wheatridge, Colo.

SHE-SUITS-ME queens, season of 1921. Untested Italians: After June 15, \$1.50 each, up to nine queens; 10 to 24 queens, \$1.40 each; 25 and up, \$1.25. Allen Latham, Norwichtown, Conn.

FOR SALE—Golden queens, untested, \$1.15; 6 or more, \$1.10 each; select untested, \$1.60; 6 or more, \$1.50 each; safe arrival. Hazel V. Boukemeyer, Randleman, R. D. No. 2, N. C.

FOR SALE—Three-banded Italian queens, untested, \$1.25 each; 6, \$6.50; 12, \$12.00. Select untested, \$1.35 each. Satisfaction guaranteed. W. T. Perdue & Sons, Fort Deposit, R. D. No. 1, Ala.

FOR SALE—Leather-colored Italian queens, tested, until June 1, \$2.50; after, \$2.00; untested, \$1.25; 12, \$13.00. Root's goods at Root's prices. A. W. Yates, 15 Chapman St., Hartford, Conn.

BEEES BY THE POUND—Also **QUEENS**. Booking orders now. FREE circulars giving details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas. E. B. Ault, Prop.

FOR SALE—250 colonies Italian bees in 10-frame hives, free from disease. Also supers, combs and winter cases. Locations go with bees if wanted. Fred D. Lamkin, Poplar Ridge, N. Y.

FOR SALE—Three-banded Italian queens, untested, \$1.25; 6, \$7.50; 12, \$14.00. Tested queens, \$2.50 each. The above queens are all select. Robt. B. Spicer, Wharton, N. J.

FOR SALE—Highest grade three-banded Italian queens. Untested, each, \$1.00; 6, \$5.50; 12, \$10; 100, \$75.00. Virgins, 45c each. No disease and satisfaction guaranteed. A. E. Crandall, Berlin, Conn.

FOR SALE—50 stands Italian bees, eight-frame hives, extracting super, and comb super with each colony. Also Novice extractor, and 25 half-depth extracting supers, ten-frame. Weber Bros., Wathena, Kansas.

FOR SALE—Golden Italian queens, untested, \$1.15; 6 for \$6.50; 12 or more, \$1.00 each; tested, \$2.00 each; select tested, \$3.00 each; extra select tested, \$4.00 each. No bees for sale. D. T. Gaster, Randleman, R. D. No. 2, N. C.

IF GOOD bright Italian queens are wanted by return mail, send your order to M. Bates, Greenville, Ala. Price, 1.00 each; \$10.00 per dozen; \$75 per 100. Pure mating, safe arrival, and satisfaction guaranteed.

HARDY ITALIAN QUEENS in Thompson safety-introducing cages. Day-old, any number, 50c each; untested, \$1.00. Package bees and queens for 1922. Write for prices and discounts on orders booked now. James McKee, Riverside, Calif.

We believe we have the best Italian queens obtainable. Our new system is working wonders. Book your order now for 1921. Untested, \$1.25; tested, \$2.25; virgins, imported mothers, 50c. Am booking orders for 1922. F. M. Russell, Roxbury, Ohio.

FOR SALE—Packages, nuclei, and pure-bred queens—queens from Root home-bred breeders. Untested, 75c; tested, \$2.00. Safe arrival and mating guaranteed. The Southland Apiaries, Hattiesburg, Miss. W. S. Tatum, Prop.

FOR SALE—Unsurpassed Italian queens. Untested, 1, \$1.50; 6, \$7.50; 12, \$14.00; 50, \$53.00; 100, \$105. Tested, 1, \$2.50; 6, \$13.50. My queens are actually laying before they are sent out. J. D. Harrah, Freewater, Oregon.

HUMMER QUEENS—Untested, \$1.00 each; \$9.00 per dozen; tested, \$1.50 each; \$15.00 per dozen. A trial will convince you that they cannot be beaten. Safe arrival and satisfaction guaranteed. Nuclei at same old prices. Geo. A. Hummer & Sons, Prairie Point, Miss.

CALIFORNIA ITALIAN QUEENS, the old reliable three-banded stock that delivers the goods. Every queen actually LAYING before being caged, and fully guaranteed. I also guarantee safe arrival. **SPECIAL FALL PRICES**, select untested, 1, \$1.25; 6, \$7.00; 12, \$13.00; 25 to 99, \$1.00 each; 100 and over, 90c each. Package bees for next spring delivery. Circular free. California Apiaries, J. E. Wing, Prop., 155 Schiele Ave., San Jose, Calif.

FOR SALE—Root's strain of Golden and leather-colored Italian queens, bees by the pound and nuclei. Untested, \$1.50 each; select untested, \$2.00; tested, \$2.50 each; select tested, \$3.00. For larger lots write. Circular free. A. J. Pinard, 440 N. 6th St., San Jose, Calif.

WE are now equipped to handle your early spring orders for package bees, and Italian queens, especially bred for the production of honey. Prices will be in accord with the reduction in material and labor. Safe arrival guaranteed. Write for prices and terms. Sarasota Bee Co., Sarasota, Fla.

FOR requeening, use Williams heavy laying Italian queens. They produce hardy, hustling, three-banded workers. Bred from the best disease-resisting strain, and priced in accordance with the present price of honey. Untested, \$1.25; 6 for \$6.50; 12 or more, \$1.00 each; tested, \$2.00. Satisfaction guaranteed. P. M. Williams, Ft. Deposit, Ala.

NORTH CAROLINA bred Italian queens of the Dr. C. C. Miller strain of three-banded Italian bees, gentle and good honey-gatherers, from July 1 until Oct. 1. Untested, \$1.25 each; \$12.00 per doz.; tested, \$2.00 each; select tested, \$3.00 each. Safe arrival and satisfaction guaranteed. L. Parker, R. F. D. No. 2, Benson, N. C.

QUEENS—A SUPERIOR STRAIN. Bred from a queen whose colony gathered 200 lbs. honey while the other colonies did very little. Queens, untested, \$2.00 each; tested, \$3.00. Doolittle strain; queens, untested, \$1.25; tested, \$2.00. 40 years' experience in queen-rearing. Chestnut Hill Apiary, Aspers, Pa.

FOR SALE—Italian queens: From July 1 to October 1, untested: 1, \$1.25; 6, \$7.00; 12, \$13.50; tested, \$2.00. I have a tested breeding queen from the A. I. Root Co., and will breed queens from her for those that prefer them to my old strain of hustlers. Safe delivery and satisfaction guaranteed. R. B. Grout, Jamaica, Vt.

TO MY FRIENDS, OLD AND NEW—During our buckwheat flow we rear our best queens. Hardy, prolific, disease-resistant, honey-gathering Italian stock. We have combined color and utility and each queen guaranteed to arrive safely and give satisfaction. August prices by return mail, untested, 1, \$1.25; 6, \$7.00; 12, \$13.00; 25 for \$25.00. J. B. Holloper, Rockton, Pa.

FOR SALE—Three-banded leather-colored bees and queens of the J. P. Moore strain, hardy, prolific, hustlers, no disease. Safe arrival and satisfaction guaranteed. Prompt attention given all orders. 1 untested, \$1.00; 12, \$10.00; 1 select untested, \$1.25; 12, \$13.50; 1 tested, \$1.75; 12, \$16.00; 1 select tested, 2.25; 12, \$20.00. J. M. Cutts, Montgomery, R. D. No. 1, Ala.

ITALIAN QUEENS—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness, and perfect markings. Price after July 1, \$1.25 each; one dozen or more, \$1.00 each. Package bees a specialty. Send for circular. J. H. Haughey Co., Berrien Springs, Mich.

FOR SALE—Until further notice we are offering our bright Italian queens, untested, at \$1.00 each; \$10.00 per dozen; \$75 per 100. We guarantee safe arrival, pure mating and reasonable satisfaction in U. S. and Canada. Cash must accompany all orders unless parties are known or satisfactorily rated. Graydon Bros., Greenville, R. D. No. 4, Ala.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL, and GENTLE. Virgins, \$1.00; mated, \$2.00; 6 for \$10.00, or \$18.00 per doz.; tested, \$5.00. Breeders, \$10 to \$20. Safe arrival guaranteed only in the U. S. and Canada. C. W. Phelps & Son, Binghamton, N. Y.

AS I am continuing in charge of Apiary Inspection with the State Dept. of Agriculture, I find it necessary to sell about 100 colonies of bees, all in good equipment. All colonies are headed by young queens of my own rearing. Price f. o. b. Lansing. Ten-frame colony, \$16.00; same, two-story, \$20.00. Eight-frame colony, \$14; same, two-story, \$18.00. B. F. Kindig, East Lansing, Mich.

ANYTHING is good enough until something comes along that is better. Even a good imitation gains admiration until compared with the genuine. Likewise with queens. The market is flooded with many strains. Extravagant claims run riotous. However, quality is quickly detected by the expert. Compare Victor's Italian queens with other strains, and their superiority is noted immediately. Price: 1, \$1.25; 6, \$7.00; 12, \$13.50. Julius Victor, Martinsville, N. Y.

JENSEN'S QUEENS BY SELECTION—Bees in nuclei, and full colonies. Untested, \$1.00 each; \$9.00 per doz. Select untested, \$1.25; dozen or more, \$1.00 each. Tested, \$1.75 each. Select tested, \$3.00. Breeders, \$5.00. Nuclei, two-frame with untested queen, \$4.50; three-frame with untested queen, \$6.00; 8-frame colony, \$15.00; 10-frame, \$17.50 with tested queens, in dovetailed hives, combs drawn from full sheets. Pure mating, no disease, prompt service and satisfaction guaranteed. Jensen's Apiaries, Crawford, R. D. No. 3, Miss.

ONE HUNDRED—When my brother, W. Z. Hutchinson, was living, we used to buy queens of J. P. Moore by the hundred each year to requeen our colonies. The last few years I have raised the queens we needed, breeding from the best in over 300 colonies of this strain. I know that I have improved the strain I started with. They are gentle, hardy, and good workers. We have 100 tested queens of this strain, one year or less old, for sale. In order to close them all out this month I will sell them for \$1.50 each, or \$16.80 per doz. They are right in their prime, first class in every respect. They should do good work another year yet. Safe arrival and satisfaction guaranteed. Elmer Hutchinson & Son, Lake City, Mich.

SITUATIONS WANTED

WANTED—Position by an experienced beekeeper in the West Indies or Central America. I would work as assistant or take charge of bees on salary or shares. G. F. Dansinger, Olean, N. Y.

BARNES' Hand and Foot Power Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices.

W. F. & JOHN BARNES CO
645 Ruby Street
ROCKFORD, ILLINOIS



"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog. **THE BEST LIGHT CO.**

306 E. 5th St., Canton, O.

REQUEEN YOUR COLONIES

No time is better than right now to prepare for perfect wintering by requeening your colonies.

Use surplus brood for increase and give each colony of increase so made one of our young untested Italian queens.

One for.....\$ 1.25

Twelve for..... 14.00

One hundred for.. 98.75

Write or wire for our proposition by which we furnish honey containers free and sell your crop for cash at a small charge for our selling service that sells, and "Fosters your business."

THE FOSTER HONEY & MERC. CO. BOULDER, COLO.

Reduced Prices on Tumblers.



We have a surplus stock of private tumblers, holding 6½ oz., put up 2 doz. in a case, including tin tops. The cost of these tumblers has more than doubled in last three years. 1249 cases, 6½-oz. private tumblers, 2 doz. in each case, 60¢; per 10 cases, \$5.50; 100 cases, \$50.00. Prices f. o. b. Philadelphia.

Send all orders direct to
THE A. I. ROOT CO., MEDINA, OHIO.

QUIGLEY QUALITY QUEENS

are bred from ideal colonies by double grafting, producing Superior Queens, being bred to our 13-frame Standard Hive capacity. 20 years breeding this strain. No disease. Purity and satisfaction guaranteed. Tested, \$2.00. Untested, \$1.25; six or more, \$1.00 each. Can supply 100 in September.

E. F. QUIGLEY & SON
Unionville, Mo.

A Superior
Quality at
Less Cost

SUPPLIES

A Superior
Quality at
Less Cost

These supplies are made by the Diamond Match Co., and are of a superior quality. Hives, Supers, etc., listed below, are in the flat, and are complete with Hoffman frames, metal rabbets, and all inside fixtures.

One-Story Dovetailed Hives

Five 8-frame	\$13.50
Five 10-frame	14.30

Shallow Extracting Supers.

Five 8-frame	\$5.00
Five 10-frame	5.50

Full-Depth Supers

Five 8-frame	\$6.70
Five 10-frame	7.60

No. 1 Style Comb Honey Supers.

Five 8-frame	\$4.80
Five 10-frame	5.25

Standard Hoffman Frames.

100	\$7.20
500	33.00

Our Incomparable Quality Foundation

Medium Brood

5 lbs.	74c per pound
25 lbs.	73c per pound
50 lbs.	72c per pound

Thin Super

5 lbs.	80c per pound
25 lbs.	79c per pound
50 lbs.	78c per pound

Light Brood

5-lb. lots	76c per pound
25-lb. lots	75c per pound
50-lb. lots	74c per pound

Aluminum Honeycombs as now made by Duffy-Diehl Co. are meeting with success. We carry these in stock to supply Eastern beekeepers.

HONEY! HONEY! HONEY!

Beekeepers who are supplying Honey to a regular family trade, or who are located along the highways, and are supplying motorists, know that their customers want a honey of a uniform color and flavor. And unless the honey is at all times uniform in color and flavor, customers sometimes become dissatisfied. Our special blend of Fancy Honeys (liquid) is always uniform and is of a fine mild flavor, and will satisfy the most exacting trade.

Special Blend of Fancy Honey (Liquid)

60-lb. Tins, 2 per case.....	14c lb.
10-lb. Tins, 6 per case.....	16c lb.
5-lb. Tins, 12 per case.....	17c lb.
2½ lb. Tins, 24 per case.....	18c lb.

Pure Vermont Maple Sap Syrup, case of 12 tins, \$14.00.

Various Grades, Crystallized, 60-lb. Tins

Water White Orange.....	14c lb.
Water White Sweet Clover.....	12c lb.
Extra Light Amber Sage.....	11c lb.
N. Y. State Buckwheat.....	10c lb.

GLASS AND TIN HONEY CONTAINERS

2½-lb. Cans, 2 dozen reshipping cases, \$1.45 case; crates of 100.....	\$ 6.50
5-lb. Pails (with handles), 1 doz. reship- ping cases, \$1.35 per case; crates of 100	8.30
10-lb. Pails (with handles), ½ doz. reship- ping cases, \$1.10 case; crates of 100	12.75
60-lb. Tins, 2 per case—NEW, \$1.30 case; USED30

White Flint Glass, With Gold Lacquered Wax Lined Caps.

8-ounce Honey Capacity, Cylinder Style.	\$1.50 per carton of 3 dozen
16-ounce Honey Capacity, Table Jar Ser- vice	\$1.40 per carton of 2 dozen
Quart or 3-pound Honey Capacity, Mason Style.....	\$1.00 per carton of 1 dozen

HOFFMAN & HAUCK, INC.

WOODHAVEN, NEW YORK

Make Your Bees Pay!

If you want bigger honey profits, get the best queens you can buy. This is the secret of successful bee-raisers. Hundreds of America's greatest honey producers order Forehand's 3-banded Italian Queens. Follow their example. Order from Forehand and be sure of satisfactory results. Backed by 28 years' successful experience in queen-breeding and honey production. Take no chances. Experimenting is costly. So certain am I that my queens will satisfy you, that I will gladly replace unsatisfactory queens delivered in U. S. or Canada, or refund your money. You be the judge and jury. Can anything be fairer?

Prices August 1st to Nov. 1st.

	1	6	12
Untested	\$1.00		\$10.00
Selected Untested	1.25		12.00
Tested	2.50	\$13.00	24.00
Selected Tested.	3.00	16.50	30.00

Bees in two-pound packages: 1 package, \$6.00; 25 or over, \$5.80; 50 or over, \$5.40; 100 or over, \$5.00, without queens.

Place your order now. Prices low, quality considered. Write for circular and discount on large orders.

N. Forehand
Ramer, Alabama

Breeder of 3-banded Italian
Queens Exclusively.

Queens that look like
this. Bred for quality
rather than quantity.



Guaranteed to give satisfac-
tion. Prompt service, qual-
ity and mating guaranteed.

SOUTHLAND QUEENS

Three-Banded Leather-Colored Italians—Bred from Selected Root Home-Bred Breeders
—Backed by Over Fifty Years in Breeding the Best Queens.

Untested\$0.75 each
Selected Untested 1.00 each

Tested\$2.00
Breeders.....\$5.00 to \$15.00

POUND PACKAGES

Shipped on comb of fdn.

One-pound bees, no queen...\$2.00
Two-pound bees, no queen.. 3.75
Three-pound bees, no queen. 5.25

NUCLEI

One-frame, no queen.....\$2.00
Two-frame, no queen..... 3.75
Three-frame, no queen..... 5.25

Distributors for Root Quality Bee Supplies. We are the beekeepers' bargain house. It will pay you to get our prices. Catalog on request. Shipments direct from factory at our prices.

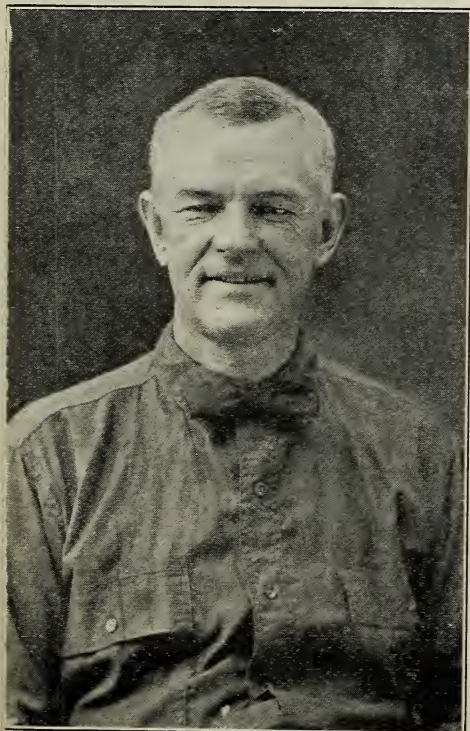
THE SOUTHLAND APIARIES, HATTIESBURG, MISS.

QUEENS

Our bees are so busy raising queens that I cannot afford whiskers this month. Besides, several customers have written me, saying they were tired of those whiskers and recommended a shave. Now as I have complied with those requests, I hope you will comply with mine and send in your order for some of our High-grade Italian Queens and become one of the large number of our satisfied customers. We are now enjoying a light honey flow from Blue Vine, making the conditions ideal for producing the very best queens. In addition to this, we give the larvae the right start in the Swarm Box

and finish the cells in powerful colonies, so populous as to crowd a two-story Jumbo hive. Cells are given to strong nuclei, and the young virgin receives the best care at all times. No queens are hatched in nursery cages. I give the fullest guarantee with every queen sent out, and will gladly replace any that proves other than first class. If the present favorable weather continues, I will be able to make prompt shipments.

Our Guarantee: I guarantee pure mating, safe arrival, and that all queens shall be first class, leaving it to the customer to be the judge.



"Half Way Tree P. O.,

"Jamaica, B. W. I.

"Dear Mr. Smith:

"Received the queen you sent all O. K. She is just splendid and vigorous. I have nearly finished requeening my apiary with the stock I bought from you last year. Their progeny are true to type and color, laying so profusely that I shall have to give them another super besides the brood-chamber in which to lay. I must say again how satisfied I am. Very faithfully,

"OTTO HOLT."

Price List for the Remainder of the Season

One to four inclusive.....	\$2.00 each
Five to nine inclusive.....	1.95 each
Ten or more.....	1.90 each
Breeders, our very best....	12.00 each

A card will bring
our catalog.

JAY SMITH, ROUTE 3, VINCENNES, IND.

Queens of MOORE'S STRAIN

OF ITALIANS
PRODUCE WORKERS

*That fill the super quick
With honey nice and thick.*

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, \$1.50; 6, \$8.00; 12, \$15.00. Select untested \$2.00; 6, \$10.00; 12, \$19.00.

I am now filling orders by return mail.
Safe arrival and satisfaction guaranteed.
Circular free.

J. P. MOORE, Queen Breeder
Route 1, Morgan, Kentucky.

Three-Band and Golden QUEENS

That produce hustling bees. Bred to fill the supers. From the finest breeding strains obtainable. Hustlers, long-lived, and as beautiful in size and color as can be. Special price for summer and fall. Untested, \$1.25 each; 12 at \$1.00 each. Tested, \$2.00 each. Breeders, \$10.00. This is your time to re-queen.

DR. WHITE BEE CO.

SANDIA, TEXAS.

INDIANOLA APIARY

will furnish 3-banded Italian bees and queens:
Untested queens, \$1.00 each; tested, \$1.50 each.
One pound bees, no queen, \$2.00. No disease.

J.W.SHERMAN, VALDOSTA, GA.

GOLDEN OR THREE-BAND QUEENS.

Untested, balance of season, \$1.00 each; doz. \$10.00, or \$80.00 per hundred. Virgins, 50c each, or \$40.00 per hundred. All orders filled promptly or parties notified when to expect shipment; satisfaction.

R. O. COX, Rt. 4, Luverne, Ala.

Thagard Italian Queens

—BRED FOR QUALITY—

Untested: 1, \$1.25; 6, \$6.50, 12, \$11.50.

V. R. THAGARD
GREENVILLE, ALA.

Spicer's Three-Banded ITALIAN QUEENS

now ready to mail. These queens are bred so as to have all the desired qualities, hustlers, hardy, and gentle.

	1	6	12
Untested queens.	\$1.25	\$7.50	\$14.00
Tested queens...	2.50	15.00	28.00

I do not list select queens, as the above are all select. Safe arrival and satisfaction guaranteed.

ROBERT B. SPICER
WHARTON, N. J.

"QUEENS OF QUALITY"

3-BAND ITALIANS ONLY.

Untested, \$1.25 each; six for \$7.00; \$12.00 per dozen.

We are now shipping by return mail.

J. I. BANKS
DOWELLTOWN, TENN.

Queens—Rhode Island—Queens

Italian Northern-bred queens. Very gentle and hardy. Great workers. Untested, \$1.25 each; 6 for \$6.

Queens delivered after June 1.

O. E. TULIP, Arlington, Rhode Island
56 Lawrence Street.

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England. If you do not have a 1921 catalog send for one at once.

H. H. Jepson, 182 Friend St, Boston 14, Mass.

STUTT'S ITALIAN QUEENS

are supreme queens; ready June 1. Untested, \$1.25; 6, \$6.50; 12, \$12.50. Select untested, \$1.50; 6, \$8.00; 12, \$15.00. Pure mating and safe arrival guaranteed.

ALFRED A. STUTT, Lincoln, Ills.

LOCKHART'S SILVER-GRAY CARNIOLANS

"LINE BRED" for the past 33 years. They are VERY hardy, gentle, prolific, great workers, and builders of VERY WHITE comb, and use mostly wax in place of propolis. Prices of queens for 1921: Untested queens, \$1.00; select untested, \$1.50; tested, \$2.50; select tested, \$3.00. Breeders, \$5.00, \$10.00. Safe arrival guaranteed in U. S. and Canada. No foul brood here.

F. A. LOCKHART & COMPANY - - LAKE GEORGE, NEW YORK




The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
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World's Best Roofing at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Sidings, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles
cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

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Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 183



LOW PRICED GARAGES
Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

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FREE Samples & Roofing Book

NEWMAN'S BRED FROM THE BEST ABSOLUTELY
ITALIAN FIRST QUALITY and fully guaranteed. No disease. Satisfaction and safe arrival.
QUEENS Untested, \$1.25; 6, \$7.00; 12, \$13.50. Select Untested, \$1.75; 6, \$9.00; 12, \$17.00. Circular free.

A. H. NEWMAN, Queen Breeder
MORGAN, KY.

Established 1885.
Write us for catalog.

BEEKEEPERS' SUPPLIES

The Kind You Want and the Kind That Bees Need

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co.'s brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.



LARGE, HARDY, PROLIFIC QUEENS
Three-band Italians and Goldens. Pure mating and safe arrival guaranteed. We ship only queens that are top notchers in size, prolificness, and color. After June 1st: Untested queens, \$1.50 each; 6 for \$8.00; 12 or more, \$1.40 each; 25 or more, \$1.25 each. Tested queens, \$3.00 each; six for \$16.00.

Buckeye Bee Co., Justus, Ohio.

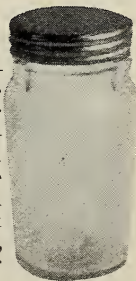
ROOT'S BEE SUPPLIES

Carload stocks at Ohio's distributing center. Orders filled the day they come in. Save time and freight by ordering from

A. M. MOORE, Zanesville, Ohio
22½ S. Third Street.

Reduced Prices on Glass Jars.

We have discontinued handling taper jars of 9-ounce capacity, and therefore offer you these attractive receptacles, including lacquered tin tops, at reduced prices. We have 576 cases on hand and have priced them for quick clearance as follows: Per case, 85c; per 10 cases, \$8.00; per 100 cases, \$75.00; 2 doz. in case. Prices f. o. b. Philadelphia.



Send all orders direct to
THE A. I. ROOT CO., MEDINA, OHIO.

Slum Gum Old Combs

worked into beeswax at 5c per pound, minimum charge \$1.00. Pay taken from wax.

Market price paid for the wax, worked into foundation, or traded for supplies.

Working Beeswax into foundation is a specialty with us.

Ship to Falconer, New York. Mark each package with your name and address both inside and outside.

Write for Red Catalog of Beekeepers' Supplies and REDUCED price list.



W. T. Falconer Mfg. Co.
Falconer, N. Y., U. S. A.

"Where the best beehives come from."

QUEENS

Select Three-Banded Italians. I have one of the most modern queen-rearing apiaries in the South, and am breeding from the best Italian stock to be found. Pure mating, prompt and safe arrival guaranteed.

	1	6	12	50
Untested ..	\$1.25	\$7.00	\$13.00	\$50.00
Tested	3.00	16.00	30.00	

Write for descriptive circular and prices on queens in lots of 100 or more.

HARDIN S. FOSTER
Dept. G, Columbia, Tenn.

PATENTS Practice in Patent Office and Court.
Patent Counsel of The A. I. Root Co.
Chas. J. Williamson, McLachlan Building,
WASHINGTON, D. C.

Every Step in Beekeeping

By Benjamin Wallace Douglass

A brand-new book based on the most up-to-date scientific information and thorough practical experience that tells how to keep bees for profit.

A book of directions, every step made clear, so that the beginner may start right and go forward without floundering. Delightfully written. Author was formerly State Entomologist of Indiana and has been a successful beekeeper for years.

Illustrated with thirty-one photographs. Price \$2.50. Sent postpaid on approval to any subscriber to this magazine.

THE BOBBS-MERRILL CO.
Vermont Plaza, Indianapolis, Ind.

To the Beekeepers Who Purchase Bees in Packages

Do not worry about *Express Charges, loss in Transit, and Delay.* We are going to do this for you.

Did you realize that a nice frame of emerging bees is equal to a pound of bees. In 1922, we will be back to pre-war price and better service.

The above is for May and June delivery, 15 per cent with order, balance 15 days before date of shipment.

2 lbs. bees, and 1 good Untested Three-banded Queen on frame of emerging bees	\$6.25
3 lbs. as above	7.50
2-frame nucleus with queen...	6.25
3-frame nucleus with queen...	7.25

OUR GUARANTEE.

Express paid. All dead bees promptly replaced. Government health certificate with each shipment. Simply have your Express Agent sign bad-order report and mail same to us at once. You take no chance. O d'r now so as not to be disappointed. Write for discount on 100 or more packages.

THE HOME OF GOOD QUEENS.
OSCAR MAYEUX
HAMBURG, LOUISIANA.

Quality Bee Supplies From a Reliable House

Without fear or favor, I place my **BEE SUPPLIES** and **SERVICE** before you.

It is the small annoyances that often grow into disastrous results. Avoid the so-called "little losses" by using **MONDENG'S** goods. Quality is first—save time when you put your goods together by getting supplies that are accurately made. Service is next—no delays when bee supplies are ordered from my factory.

I am ready to meet your urgent needs. Send for my latest price-list.

Closing out all Langstroth and Wisconsin hives and supers. Also Langstroth triangular top-bar frames, and eight-frame D. T. supers for 4x5 sections. At cost price. Write for quotations.

Charles Mondeng

146 Newton Ave. N. &
159 Cedar Lake Road.

MINNEAPOLIS, MINNESOTA.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant. We are paying higher prices than ever for wax. We work wax for cash or on shares.

ROOT BEE SUPPLIES

Big stock, wholesale and retail. Big catalog free.

Carl F. Buck

The Comb-foundation Specialist

AUGUSTA, KANSAS

Established 1899.



Completely Destroys the Weed Growth

More than that, the **BARKER** breaks the hardest crust into a level, porous, moisture-retaining mulch—all in the same operation.

A ten-year-old boy can run it—do more and better work than ten men with hoes. Saves time and labor, the two big expense items.

BARKER WEEDER, MULCHER AND CULTIVATOR

Eight reel blades revolve against a stationary underground knife—like a lawn mower. **BEST WEED KILLER EVER USED.** Works right up to plants. Cuts runners. Aerates the soil. Has leaf guards, and shovels, for deeper cultivation—3 garden tools in 1.

FREE ILLUSTRATED BOOK.

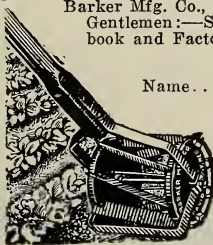
Tells how gardeners and fruit-growers everywhere are reducing their work; increasing their yields.—How to bring growing plants through a dry season.—How to conserve the moisture and force a larger, more rapid growth. Send **TODAY** for this free, illustrated book and special Factory-to-User offer.

BARKER MANUFACTURING COMPANY

Dept. 23.

David City, Neb.

Barker Mfg. Co., Dept. 23, David City, Neb.
Gentlemen:—Send me postpaid your free book and Factory-to-User offer.



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HUBAM

The Great Honey Bearing Clover



PRACTICAL experience with Hubam, the annual white sweet clover discovered by Prof. Hughes, is proving that it surpasses expectations in the richness of its honey-bearing content. It blooms in three to four months and continues blooming for a longer period than other honey-bearing plants.

These advantages promise to make Hubam an influence of the first importance in the business of beekeeping. It will establish a new low standard of costs and enlarged production. The use of Hubam is rapidly becoming a necessity for the successful beekeeper.

Quick growth and an unusual wealth of honey-making blooms are combined with a legume action that returns large quantities of valuable plant food to the soil.

We are large-scale growers of Hubam seed with acreages in Texas, Ohio, and North Dakota. To prevent accidental mixing of seeds we grow only Hubam clover and guarantee the purity of the seed.

Some seed of the 1921 crop is now available.

THE DE GRAFF FOOD COMPANY

Seed Department, 303
DE GRAFF, OHIO

Leininger's Strain of Italian Queens

Have been carefully selected and bred for the past 38 years. Our queens are reared from selected stock taken from the best strains of Italian bees known. Neither trouble nor expense is spared to produce queens of unsurpassed quality. They have proved themselves to be not only great honey-gatherers but also very resistant to brood diseases.

We will have 400 select tested queens that we will sell as long as they will last at the following special prices:

PRICE LIST OF QUEENS.

Untested, \$1.50 each; 6 to 25, \$1.40 ea.

Sel. Tested, \$3 each; 6 to 25, \$2.75 ea.

Breeding queens, \$10.00 each.

Every queen we send out we will guarantee to give fullest satisfaction.

FRED LEININGER & SON
DELPHOS, OHIO.

Buy Your Bee Supplies Now

Take advantage of early-order discounts by ordering NOW. We guarantee to please you. "Prompt service and the very best" is our motto. We want your beeswax and old comb. Highest cash and trade prices offered. Texas beekeepers should write A. M. HUNT, Goldthwaite, Texas.

Manufactured by

Leahy Manufacturing Company

95 Sixth St., Higginsville, Missouri

Write for FREE catalog. It is to your interest.

LEWIS 4-WAY BEE ESCAPES



Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial metal. Price each 20c postpaid. Made by **G. B. Lewis Company, Watertown, Wis., U.S.A.** Sold only by Lewis "Beeware" Distributors.

Northwestern Headquarters for Italian Queens

The queen is the life of the colony. You cannot afford to keep poor queens or a poor strain of bees. I have been in the bee business for more than twenty years and have made every effort to improve the honey-gathering qualities of my bees by purchase of breeders and by select breeding. I believe that my bees are unsurpassed by any. When you buy Untested Queens from me you are getting select untested queens. I will begin mailing queens about June 1.

PRICES: June 1 to October 1: Untested Italian Queen—1, \$1.50; 6, \$7.50; 12, \$14.00; 50, \$55.00; 100, \$105.00. Tested Italian Queen—1, \$2.50; 6, \$13.50.
I have no pound packages or nuclei for sale.

J. D. HARRAH, ROUTE 1, FREEWATER, OREGON

**BANKING
BY MAIL
AT 4%**

SAFETY AND 4% INTEREST

No matter where you may be located, you can deposit your money BY MAIL in absolute safety at 4% interest in this strong bank. Send your first deposit today and lay the foundation for future financial independence.

THE SAVINGS DEPOSIT BANK CO.

A.T. SPITZER, Pres.

E.R. ROOT, Vice Pres. E.B. SPITZER, Cash.

MEDINA, OHIO

America's

greatest corporations have learned the expediency of planning their policies for many years ahead. This is one of the reasons why these stalworth enterprises go right on expanding through all sorts of business weather.

Mr. O. J. Jones of Wichita, Kansas, not only plans ahead, but plans well. He is a well-known Kansas beekeeper and president of the State Beekeepers' Association. In his letter of July 4th he tells us of one of the very vital plans of his business. He believes that the success of his business depends on good bees, and for that reason he is planning to head his apiaries with Forehand's Three Bands. This is his plan:

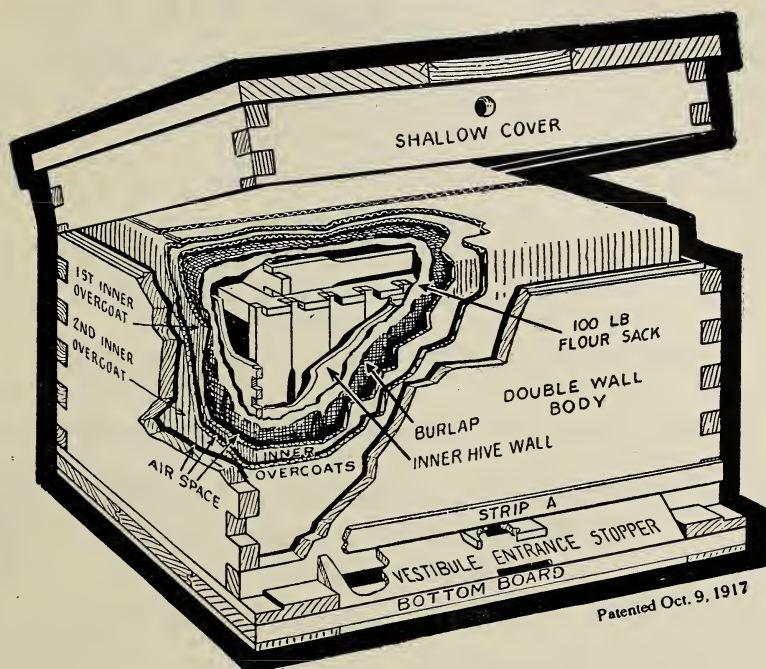
"I have tested out stock from your queens, side by side with stock from other southern queen-breeders, for the past four years. I have found yours giving much better results in almost every instance, averaging a much higher degree of efficiency. So well satisfied with the results from your stock am I that I am rearing all my queens from some very fine breeders that I have purchased from you, or their offsprings."

These breeding queens were selected from some of our untested queens.

PRICES—Untested: 1, \$1.25; 6, 6.50; 12, \$11.50; 100, 90c each. Select Untested: 1, \$1.50; 6, \$7.50; 12, \$13.50; 100, \$1.00 each. Tested: 1, \$2.00; 6, \$10.00; 12, \$18.50. Select Tested: 1, \$2.75; 6, \$15.00; 12, \$27.00.

We guarantee pure mating and satisfaction the world over. Safe arrival in the United States and Canada.

W. J. Forehand & Sons
Fort Deposit, Ala.

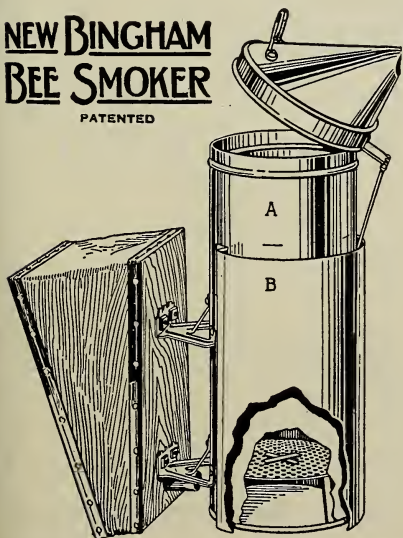


Winter Problem Solved by the Hive with an Inner Overcoat.

It will pay you to try out a sample shipment of these hives the coming winter. The outside walls are made of $\frac{3}{8}$ material and will last a lifetime. Material and workmanship guaranteed to please you. The Inner Overcoats furnish the close-up protection which brings the bees through the winter in fine condition. We can make prompt shipment and prices have been reduced. Your order will have our prompt attention.

NEW BINGHAM BEE SMOKER

PATENTED



BUY BINGHAM BEE SMOKERS.

On the market over 40 years. The bellows of best quality sheepskin is provided with a valve, which gives it pep and makes it respond quickly to the most delicate touch, giving as much or as little smoke as is required. The Big Smoke size, stove 4 x 10 inches, with asbestos-lined shield, permits the holding of the smoker between the knees without danger of burning the trousers or one's legs. This size is much appreciated by extensive operators.

SPECIAL SALE HONEY PACKAGES

Get our latest reduced prices on all honey packages. Let us add you to our large list of pleased customers on this line of merchandise. Special prices on shipments from factories direct to customer. Sixty-pound cans in bulk and in cases. Friction-top pails and cans all sizes. Clear flint glass, Mason jars pints and quarts, tumblers, pound jars and other sizes. Get on to our list, so as to get quotations.

A. G. WOODMAN COMPANY
Grand Rapids, Michigan.

QUEENS FULL COLONIES AND NUCLEI QUEENS

Our bees are hustlers for honey, prolific, gentle, very resistant to European Foul Brood, our customers tell us. For years we have been shipping thousands of queens and pounds of bees all over the U. S. A. and Canada. We are continually getting letters with statements such as the following: "Well pleased with your stock," "Best we ever had," "The bees we got from you are the tops (best) we have in our 225 colonies," "Bees arrived in fine shape, well pleased," etc., etc. Write for circulars giving details, etc. We are quoting a lower price for balance of the year, but will still hold up the high standard of quality.

I have a good proposition for 2 or 3 Northern beekeepers that would like to come South this fall. Write for particulars.

QUEENS AFTER JULY 1st, BALANCE OF THE YEAR:

Untested \$1.35 each; 25 or more, \$1.00 each	1 lb. of bees \$2.25 each; 25 or more, \$2.13 each
Select Unt. . . . 1.50 each; 25 or more, 1.25 each	2 lbs. of bees 3.75 each; 25 or more, 3.56 each
Tested 2.25 each; 25 or more, 1.75 each	3 lbs. of bees 5.25 each; 25 or more, 4.98 each
Select Tested.. 2.75 each; 25 or more, 2.00 each	Add price of queen wanted when ordering bees.

Safe arrival guaranteed within six days of here.

NUECES COUNTY APIARIES

E. B. AULT, Prop.

CALLEN, TEXAS



Select Three-Banded Italians of the Highest Quality One Grade



800 honey-gathering colonies from which to select the very best breeders. No one has better bees than I. Can make prompt delivery by return mail. I have not yet disappointed a customer.

A new customer from Missouri where you have to show them, writes: "The dozen queens arrived promptly. They are the most beautiful I ever saw."—(Name on request.)

Another one from the same state writes: "Your 100 2-lb. packages averaged 90 lbs. surplus honey per colony, 10 lbs. more per colony than the other 2-lb. packages purchased elsewhere."—H. H. Thale, Durham, Mo.

Pure mating, safe arrival and satisfaction guaranteed.

It is left with customer to say what is satisfaction.

Prices for balance of season: 1 Untested Queen, \$1.00; for 6, \$5.50; for 12 or more, \$10.00 per dozen. Tested Queens, \$2.00 each.

JASPER KNIGHT, HAYNEVILLE, ALA.

FOR YOUR 1921 CROP

Comb honey shipping cases, honey cans, friction-top pails. Price on application.

Early order cash discount on sections, hives, supers, frames, comb foundation, and other goods.

Buy now and get supplies ready for 1922. Make out your list, and send for our prices.

AUGUST LOTZ COMPANY, BOYD, WIS.

SIGNS

LABELS

CARTONS

Candy would be just as sweet if packed in a shoe box, but it will not sell as well.

EFFICIENT SIGNS, LABELS, AND CARTONS
WILL SELL HONEY AT GOOD PRICES.

We have them—

SIGNS---

In two colors, printed both sides,
19½ x 28 inches. Postpaid, 80c.

LABELS---

Send for catalog of 100 full-sized
designs in one, two, and three col-
ors. All sizes. Prices right.

CARTONS---

All sizes plain or with your ad-
dress. Cartons will bring repeat
orders for comb honey.

Send for

THE ROOT LABEL CATALOG
SPECIAL CONTAINER PRICE LIST

THE A. I. ROOT COMPANY
MEDINA, OHIO

There is a Root Dealer near you

10,299 Queens

Reared this season to August first, all sold and could have sold more. Why? Because the thousands we have sold must have given satisfaction.

If you haven't already, experts advise you to requeen NOW. We can furnish you the queens that will deliver you the goods.

Untested, 1 to 12.....	\$1.00 each
Untested, 12 or more..	.75 each
Tested, 1 to 12.....	2.00 each
Tested, 12 or more....	1.50 each
Breeders.....	\$5.00 to \$25.00 each

Safe arrival and satisfaction guaranteed.
Return dead and unsatisfactory queens.



The Stover Apiaries
Mayhew, Mississippi